

حمل الآن

مجاناً وحصرياً

المراجعة رقم (1)

اختبار شهر مارس



1 Choose the correct answer:

- a If $(x + 5)(x - 5) = x^2 + bx - 25$, then $b = \dots\dots\dots$ (0, 10, 5, -10)
- b If the area of a square is 200 cm^2 , then the length of its diagonal = $\dots\dots\dots$ cm
(10, 20, 25, 15)
- c $(x^3 - x^2) \div x^2 = \dots\dots\dots$ (0, $x + 1$, $x - 1$, $2x + 1$)
- d The image of the point (5, 0) by reflection in Y-axis is $\dots\dots\dots$
[(5, 0), (-5, 0), (0, 5), (0, -5)]
- e If $x = \sqrt[3]{-0.027}$, then $x = \dots\dots\dots$ (0.3, -0.3, ± 0.3 , 0.9)

2 Answer each of the following:

- a Simplify the expression to the simplest form: $(x - 2)^2 + (x + 3)(x - 2)$,
then find the numerical value of the resulting expression when $x = -2$

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- b A trapezium has an area of 180 square inches and height of 12 inches.
Find the length of its middle base.

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- c Find the quotient of $(x^2 - 2x - 15)$ divided by $(x + 3)$

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- d Draw an angle of measure 100° , then bisect it using a ruler and compass.

- e Which has a greater area?

A rhombus with diagonals lengths of 10 cm and 8 cm or a square with a diagonal length 9 cm.

1 Choose the correct answer:

- a If the area of a rhombus is 20 cm^2 , then the product of its diagonal lengths is
 cm^2 (10 , 40 , 5 , 80)
- b If $(x + 2y)^2 = x^2 + kxy + 4y^2$, then $k =$ (6 , 8 , 3 , 4)
- c If $(x^2 + 5x + 25)$ is one of factors of the expression $(x^3 - 125)$, then the other factor is
 ($x - 5$, $x + 5$, x , $x^2 - 5$)
- d The image of the point (3,5) by reflection in the X-axis is
 [(3 , 5) , (-3 , 5) , (3 , -5) , (-3 , -5)]
- e If $(x + y)^2 = 16$, and $xy = 3$, then what is the value of $x^2 + y^2$?
 (13 , 10 , 48 , $5\frac{1}{3}$)

2 Answer each of the following:

- a Draw \overline{AB} of length 6 cm and bisect it using the ruler and the compass.

- b Draw $\triangle ABC$ where A (0, 2), B (-5, 0) and C (-3, -5), then draw the image of $\triangle ABC$ by a reflection in the Y-axis.

- c Find the solution set of the following equation in \mathbb{Z} : $x(x-2) + 2(x-2) = 0$

- d A trapezium has an area of 135 cm^2 and a height of 9 cm. if the length of one of its bases is 10 cm, find the length of its other base.

- e If $x-1$ is one of factors of the expression: $x^2 - 5x + 4$, find the other factor.

1 Choose the correct answer:

- a A trapezium with an area 40 cm^2 and the length of one of its parallel bases is 4 cm and its height is 8 cm, then the length of the other base = cm. (6, 12, 10, 8)
- b If $(x - 3)(x + 2) = x^2 - x + C$, then $C = \dots\dots\dots$ (-6, -1, 6, -12)
- c The image of the point (2, -1) by reflection in the Y-axis is
[(2, 1), (-2, 1), (2, -1), (-2, -1)]
- d The quotient of: $\frac{15a^3Cb^2}{3a^2b^2C} = \dots\dots\dots$ (5 abc, $5a^2bc$, 5 a, 5 bc)
- e The multiplicative inverse of 2^{-1} is (2, $\frac{1}{5}$, 0, 1)

2 Answer each of the following:

- a If the area of a rectangle equals $(10x^3 + 15x^2 + 5x)$ square units, and the length of one of its dimensions is $(5x)$ length units. Find the length of the other dimension in terms of x .

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- b Divide $x^2 - 5x + 6$ by $x - 2$

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- c Find the product of the following algebraic expressions:

$(x - 3)(x^2 - 4x + 6)$, then find the numerical value at $x = -1$

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- d Draw the triangle ABC where: $AB = 4\text{ cm}$, $BC = 5\text{ cm}$ and $AC = 2\text{ cm}$, and determine the type of the triangle according to the measures of its angles.

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- e A trapezium has an area of 500 cm^2 , a height of 25 cm , and the ratio between the lengths of its parallel bases is $2 : 3$ What is the length of each base?

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1 Choose the correct answer:

- a The quotient of: $(-8x^3) \div (2x) = \dots\dots\dots$. $(4x, -4x^2, 4x^2, 2x^2)$
- b If $x + y = 6$, then the numerical value of the algebraic expression:
 $x^2 + 2xy + y^2$ is $\dots\dots\dots$. $(12, 24, 36, 48)$
- c If the side length of a rhombus is 4 cm and its height is 3 cm, then its area
= $\dots\dots\dots$ cm². $(6, 12, 14, 18)$
- d The image of the point (1, -3) by reflection in X-axis is $\dots\dots\dots$.
 $[(1, 3), (-1, -3), (1, -3), (3, -1)]$
- e If $-x < 3$, which of the following could be the value of x ? $(-5, -6, -2, -7)$

2 Answer each of the following:

- a A rhombus with diagonal lengths $(2x + 4)$ cm and $(x + 5)$ cm. Find its area in terms of x , then find the numerical value of the area when $x = 2$

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- b Find the solution set in \mathbb{Q} for the inequality :

$$2(x + 2) \geq 5x + 1$$

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- c Draw the triangle ABC, where $AB = 4.5$ cm, $AC = 3$ cm, and $m(\angle A) = 72^\circ$

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- d Find the value of b which makes the expression $(4x^2 + 11x + b)$ divisible by $(x - 1)$

- e Draw $\triangle ABC$ where $A(0, 2)$, $B(-5, 0)$ and $C(-3, -5)$, then draw the image of $\triangle ABC$ by a reflection in the X -axis.

1 Choose the correct answer:

- a A trapezium with a middle base length of 8 cm and height 7 cm, then its area = cm^2 .
(28 , 56 , 112 , 30)
- b If $x - 3y = 5$, and $x + 3y = 8$, then $x^2 - 9y^2 =$
(20 , 40 , 80 , 26)
- c The image of the point (3,0) by reflection in X-axis is
[(3,0) , (-3,0) , (0,3) , (0,-3)]
- d $4^3 \times 2^3 =$
(2^9 , 2^6 , 2^7 , 2^8)
- e $\frac{8x^2 - 12x}{4x} =$
($-x$, $-2x^2$, $2x^2 - 3x$, $2x - 3$)

2 Answer each of the following:

- a Two pieces of land are equal in area, the first in the shape of a rhombus with diagonal lengths of 6 meters and 18 meters, and the other is in the shape of a trapezium, its height is 9 meters. Find the length of the middle base of the trapezium.
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- b If $(45x^2y^3 - 30xy) \div (-5x) = nxy^3 + 6y$, then find the value of n.
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- c Draw an angle LMN of measure 160° , then divide it into 4 equal angles using the ruler and the compass.

- d Simplify the following expression to its simplest form: $2x(3x - 1) + 3x(x + 2)$, then find the numerical value at $x = -2$

- e Draw the triangle ABC where $AB = 4 \text{ cm}$, $AC = 6 \text{ cm}$ and $m(\angle BAC) = 100^\circ$

1 Choose the correct answer:

- a If $(x + 5)(x - 5) = x^2 + bx - 25$, then $b = \dots\dots\dots$ (0, 10, 5, -10)
- b If the area of a square is 200 cm^2 , then the length of its diagonal = $\dots\dots\dots$ cm
(10, 20, 25, 15)
- c $(x^3 - x^2) \div x^2 = \dots\dots\dots$ (0, $x + 1$, $x - 1$, $2x + 1$)
- d The image of the point (5, 0) by reflection in Y-axis is $\dots\dots\dots$
[(5, 0), (-5, 0), (0, 5), (0, -5)]
- e If $x = \sqrt[3]{-0.027}$, then $x = \dots\dots\dots$ (0.3, -0.3, ± 0.3 , 0.9)

2 Answer each of the following:

- a Simplify the expression to the simplest form:
 $(x - 2)^2 + (x + 3)(x - 2)$, then find the numerical value of the resulting expression
when $x = -2$
- $$\begin{aligned} & (x - 2)^2 + (x + 3)(x - 2) \\ &= x^2 - 4x + 4 + x^2 + x - 6 \\ &= 2x^2 - 3x - 2 \end{aligned}$$
- The numerical value when $x = -2$ is
- $$2(-2)^2 - 3 \times -2 - 2 = 8 + 6 - 2 = 12$$
- b A trapezium has an area of 180 square inches and height of 12 inches.
Find the length of its middle base.

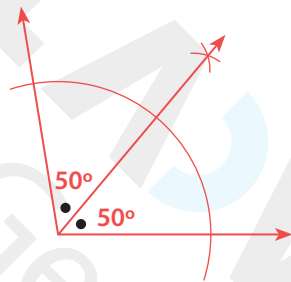
$$\begin{aligned} \text{The length of its middle base} &= \frac{\text{Area of trapezium}}{\text{height}} \\ &= \frac{180}{12} = 15 \text{ inches} \end{aligned}$$

- c Find the quotient of $(x^2 - 2x - 15)$ divided by $(x + 3)$

$$\begin{array}{r}
 x - 5 \\
 x + 3 \overline{) x^2 - 2x - 15} \\
 \underline{-(x^2 + 3x)} \\
 -5x - 15 \\
 \underline{+(5x + 15)} \\
 0
 \end{array}$$

The quotient is: $x - 5$

- d Draw an angle of measure 100° , then bisect it using a ruler and compass.



- e Which has a greater area?

A rhombus with diagonals lengths of 10 cm and 8 cm or a square with a diagonal length 9 cm.

$$\begin{aligned}
 \text{The area of a rhombus} &= \frac{1}{2} \times d_1 \times d_2 \\
 &= \frac{1}{2} \times 10 \times 8 = 40\text{cm}^2
 \end{aligned}$$

$$\begin{aligned}
 \text{The area of a square} &= \frac{1}{2} \times d^2 \\
 &= \frac{1}{2} \times (9)^2 = 40.5\text{cm}^2
 \end{aligned}$$

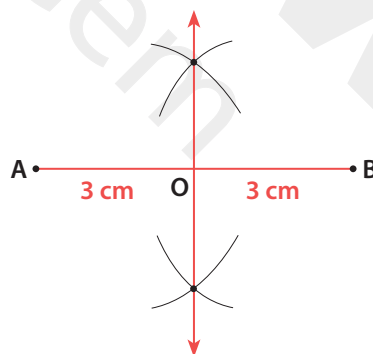
The area of the square is greater than the area of the rhombus.

1 Choose the correct answer:

- a If the area of a rhombus is 20 cm^2 , then the product of its diagonal lengths is cm^2 (10, **40**, 5, 80)
- b If $(x + 2y)^2 = x^2 + kxy + 4y^2$, then $k =$ (6, 8, 3, **4**)
- c If $(x^2 + 5x + 25)$ is one of factors of the expression $(x^3 - 125)$, then the other factor is (**$x - 5$** , $x + 5$, x , $x^2 - 5$)
- d The image of the point (3,5) by reflection in the X-axis is [(3, 5), (-3, 5), **(3, -5)**, (-3, -5)]
- e If $(x + y)^2 = 16$, and $xy = 3$, then what is the value of $x^2 + y^2$? (13, **10**, 48, $5\frac{1}{3}$)

2 Answer each of the following:

- a Draw \overline{AB} of length 6 cm and bisect it using the ruler and the compass.



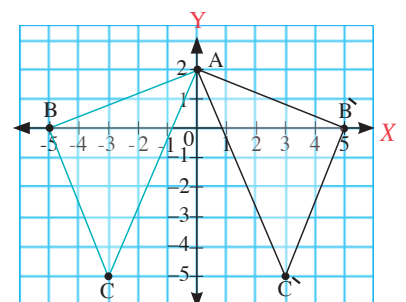
- b Draw $\triangle ABC$ where $A(0, 2)$, $B(-5, 0)$ and $C(-3, -5)$, then draw the image of $\triangle ABC$ by a reflection in the Y-axis.

$$A(0, 2) \rightarrow A(0, 2) \text{ (the same point)}$$

$$B(-5, 0) \rightarrow B'(5, 0)$$

$$C(-3, -5) \rightarrow C'(3, -5)$$

$\triangle AB'C'$ is the image of $\triangle ABC$ by reflection in the Y-axis



- c Find the solution set of the following equation in \mathbb{Z} : $x(x - 2) + 2(x - 2) = 0$

$$x(x - 2) + 2(x - 2) = 0$$

$$x^2 - 2x + 2x - 4 = 0$$

$$x^2 - 4 = 0$$

$$x^2 = 4$$

$$x = \pm 2$$

The solution set = $\{-2, 2\}$

- d A trapezium has an area of 135 cm^2 and a height of 9 cm. If the length of one of its bases is 10 cm, find the length of its other base.

$$\text{The middle base length} = \frac{\text{The area}}{\text{height}} = \frac{135}{9} = 15 \text{ cm}$$

$$\begin{aligned} \text{The length of the other base} &= (2 \times \text{middle base length}) - \text{length of the first base} \\ &= 2 \times 15 - 10 \\ &= 30 - 10 = 20 \text{ cm} \end{aligned}$$

- e If $x-1$ is one of factors of the expression: $x^2 - 5x + 4$, find the other factor.

$$\begin{array}{r} x-4 \\ x-1 \overline{) x^2 - 5x + 4} \\ \underline{-(x^2 - x)} \\ -4x + 4 \\ \underline{+4x - 4} \\ 0 \end{array}$$

The other factor is: $x - 4$

1 Choose the correct answer:

- a A trapezium with an area 40 cm^2 and the length of one of its parallel bases is 4 cm and its height is 8 cm, then the length of the other base = cm. (**6**, 12, 10, 8)
- b If $(x - 3)(x + 2) = x^2 - x + C$, then $C = \dots\dots\dots$ (**-6**, -1, 6, -12)
- c The image of the point (2, -1) by reflection in the Y-axis is
[(2, 1), (-2, 1), (2, -1), **(-2, -1)**]
- d The quotient of: $\frac{15a^3Cb^2}{3a^2b^2C} = \dots\dots\dots$ (5 abc, 5 a^2bc , **5 a**, 5 bc)
- e The multiplicative inverse of 2^{-1} is (**2**, $\frac{1}{5}$, 0, 1)

2 Answer each of the following:

- a If the area of a rectangle equals $(10x^3 + 15x^2 + 5x)$ square units, and the length of one of its dimensions is $(5x)$ length units.
Find the length of the other dimension in terms of x .

\therefore The area of rectangle = Length \times Width

\therefore Length = Area \div Width

$$\begin{aligned} \text{The other dimension} &= \frac{10x^3 + 15x^2 + 5x}{5x} \\ &= (2x^2 + 3x + 1) \text{ length units} \end{aligned}$$

- b Divide $x^2 - 5x + 6$ by $x - 2$

$$\begin{array}{r} x-3 \\ x-2 \overline{) x^2 - 5x + 6} \\ \underline{-(x^2 - 2x)} \\ -3x + 6 \\ \underline{+ (3x - 6)} \\ 0 \\ 0 \end{array}$$

The quotient is: $x - 3$

- c Find the product of the following algebraic expressions:

$(x - 3)(x^2 - 4x + 6)$, then find the numerical value at $x = -1$

$$(x - 3)(x^2 - 4x + 6)$$

$$= x^3 - 4x^2 + 6x - 3x^2 + 12x - 18$$

$$= x^3 - 7x^2 + 18x - 18$$

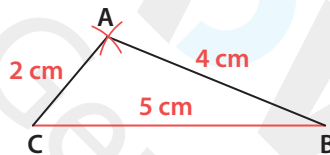
At $x = -1$

$$= (-1)^3 - 7(-1)^2 + 18(-1) - 18$$

$$= -1 - 7 - 18 - 18 = -44$$

- d Draw the triangle ABC where: $AB = 4$ cm, $BC = 5$ cm and $AC = 2$ cm, and determine the type of the triangle according to measures of its angles.

The type of the triangle is : Obtuse-angled triangle.



- e A trapezium has an area of 500 cm^2 , a height of 25 cm, and the ratio between the lengths of its parallel bases is $2 : 3$. What is the length of each base?

$$\text{Length of Middle base} = \frac{500}{25} = 20 \text{ cm}$$

L. of First base	:	L. of second base	:	sum
2	:	3	:	5
?	:	?	:	40

$$\text{The value of each part} = \frac{40}{5} = 8 \text{ cm}$$

$$\text{The length of first base} = 2 \times 8 = 16 \text{ cm}$$

$$\text{The length of second base} = 3 \times 8 = 24 \text{ cm}$$

1 Choose the correct answer:

- a The quotient of: $(-8x^3) \div (2x) = \dots\dots\dots$. $(4x, -4x^2, 4x^2, 2x^2)$
- b If $x + y = 6$, then the numerical value of the algebraic expression:
 $x^2 + 2xy + y^2$ is $\dots\dots\dots$. $(12, 24, 36, 48)$
- c If the side length of a rhombus is 4 cm and its height is 3 cm, then its area = $\dots\dots\dots$ cm².
 $(6, 12, 14, 18)$
- d The image of the point (1, -3) by reflection in X-axis is $\dots\dots\dots$.
 $[(1, 3), (-1, -3), (1, -3), (3, -1)]$
- e If $-x < 3$, which of the following could be the value of x ? $(-5, -6, -2, -7)$

2 Answer each of the following:

- a A rhombus with diagonal lengths $(2x + 4)$ cm and $(x + 5)$ cm. Find its area in terms of x , then find the numerical value of the area when $x = 2$

$$\begin{aligned}
 \text{The area of a rhombus} &= \frac{1}{2} \times d_1 \times d_2 \\
 &= \frac{1}{2} (2x + 4) (x + 5) \\
 &= (x + 2) (x + 5) \\
 &= (x^2 + 7x + 10) \text{ cm}^2
 \end{aligned}$$

$$\text{The numerical value when } x = 2 \text{ is } 2^2 + 2 \times 7 + 10 = 28 \text{ cm}^2$$

- b Find the solution set in \mathbb{Q} for the inequality:

$$2(x + 2) \geq 5x + 1$$

$$2x + 4 \geq 5x + 1$$

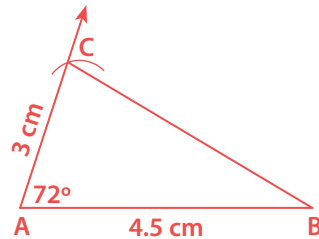
$$2x - 5x \geq 1 - 4$$

$$-3x \geq -3$$

$$x \leq 1$$

$$\text{Solution set is } \{x : x \in \mathbb{Q}, x \leq 1\}$$

- c Draw the triangle ABC, where $AB = 4.5$ cm, $AC = 3$ cm, and $m(\angle A) = 72^\circ$



- d Find the value of b which makes the expression $(4x^2 + 11x + b)$ divisible by $(x - 1)$

$$\begin{array}{r}
 4x + 15 \\
 \overline{) 4x^2 + 11x + b} \\
 \underline{-(4x^2 - 4x)} \\
 15x + b \\
 \underline{-(15x - 15)} \\
 0 0
 \end{array}$$

$b = -15$

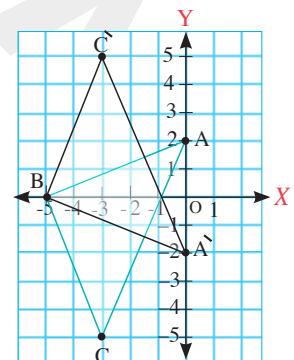
- e Draw $\triangle ABC$ where $A(0, 2)$, $B(-5, 0)$ and $C(-3, -5)$, then draw the image of $\triangle ABC$ by a reflection in the X-axis.

$A(0, 2) \rightarrow A'(0, -2)$

$B(-5, 0) \rightarrow B(-5, 0)$ (the same point)

$C(-3, -5) \rightarrow C'(-3, 5)$

$\triangle A'BC'$ is the image of $\triangle ABC$ by reflection in the X-axis



1 Choose the correct answer:

- a A trapezium with a middle base length of 8 cm and height 7 cm, then its area = cm².
(28 , **56** , 112 , 30)
- b If $x - 3y = 5$, and $x + 3y = 8$, then $x^2 - 9y^2 =$
(20 , **40** , 80 , 26)
- c The image of the point (3,0) by reflection in X-axis is
[**(3, 0)** , (-3, 0) , (0, 3) , (0, -3)]
- d $4^3 \times 2^3 =$
(**2⁹** , 2⁶ , 2⁷ , 2⁸)
- e $\frac{8x^2 - 12x}{4x} =$
(-x , -2x² , 2x² - 3x , **2x - 3**)

2 Answer each of the following:

- a Two pieces of land are equal in area, the first in the shape of a rhombus with diagonals lengths of 6 meters and 18 meters, and the other is in the shape of a trapezium, its height is 9 meters. Find the length of the middle base of the trapezium.

$$\begin{aligned}\text{The area of a rhombus} &= \frac{1}{2} \times d_1 \times d_2 \\ &= \frac{1}{2} \times 6 \times 18 = 54 \text{ m}^2\end{aligned}$$

Since the area of the rhombus = The area of the trapezium

$$\text{Then, the middle base length} = \frac{\text{The area}}{\text{height}} = \frac{54}{9} = 6 \text{ m}$$

- b If $(45x^2y^3 - 30xy) \div (-5x) = nxy^3 + 6y$, then find the value of n

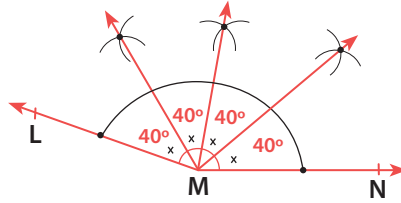
$$\therefore (45x^2y^3 - 30xy) \div (-5x) = nxy^3 + 6y$$

$$\therefore \frac{45x^2y^3 - 30xy}{-5x} = nxy^3 + 6y$$

$$-9xy^3 + 6y = nxy^3 + 6y$$

$$n = -9$$

- c Draw an angle LMN of measure 160° , then divide it into 4 equal angles using the ruler and the compass.



- d Simplify the following expression to its simplest form: $2x(3x - 1) + 3x(x + 2)$, then find the numerical value at $x = -2$

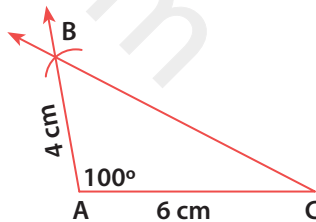
$$2x(3x - 1) + 3x(x + 2)$$

$$= 6x^2 - 2x + 3x^2 + 6x$$

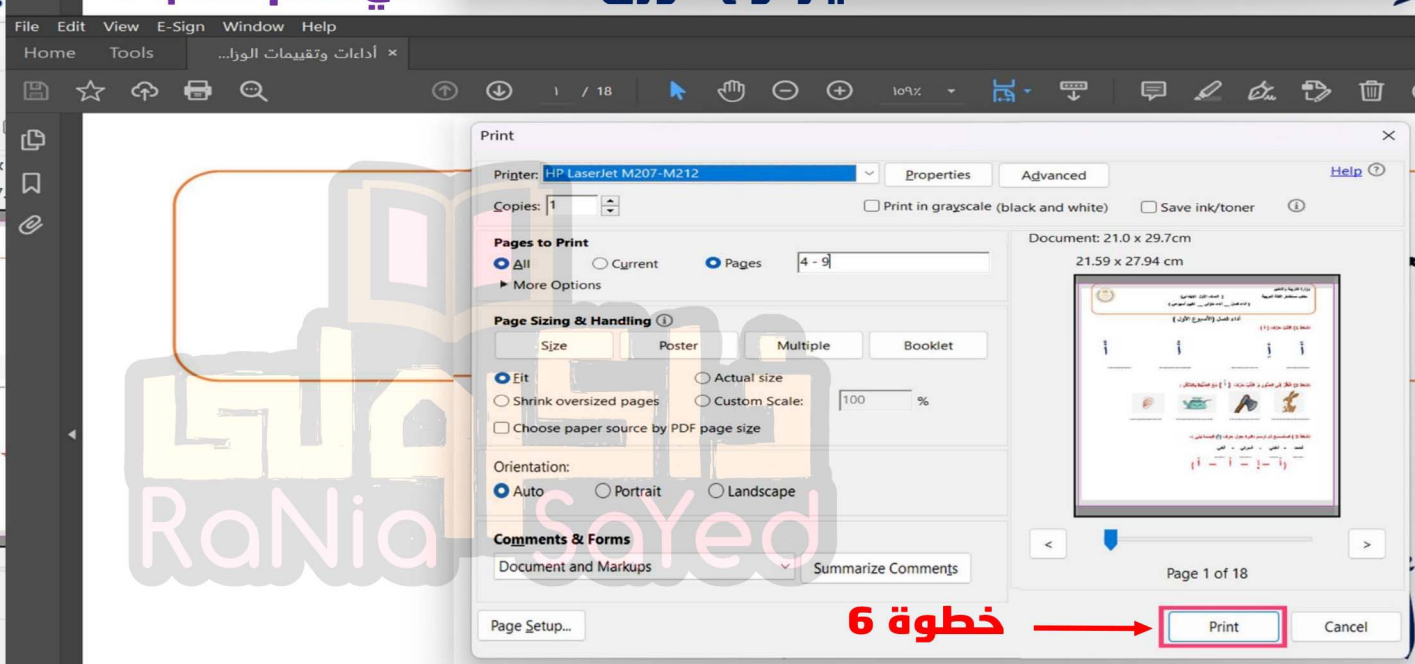
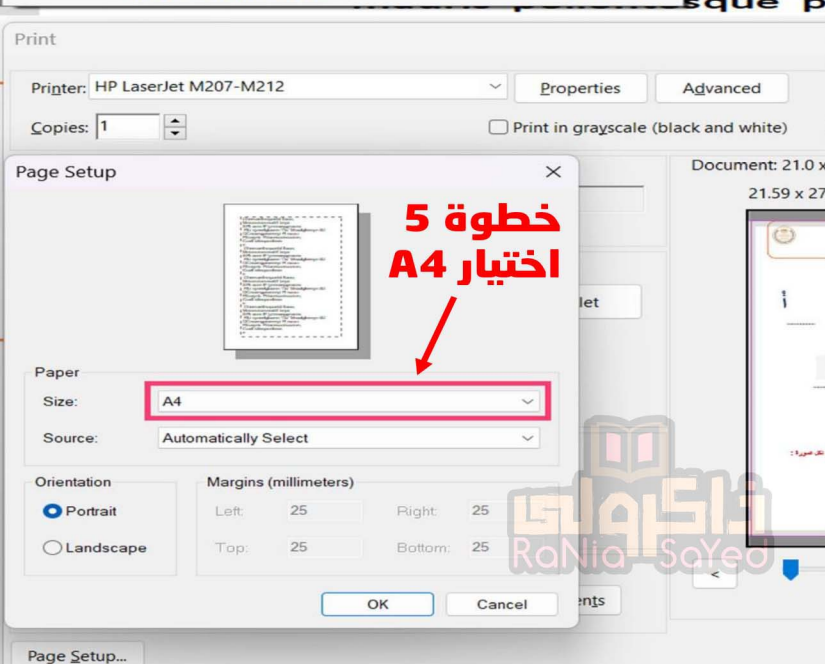
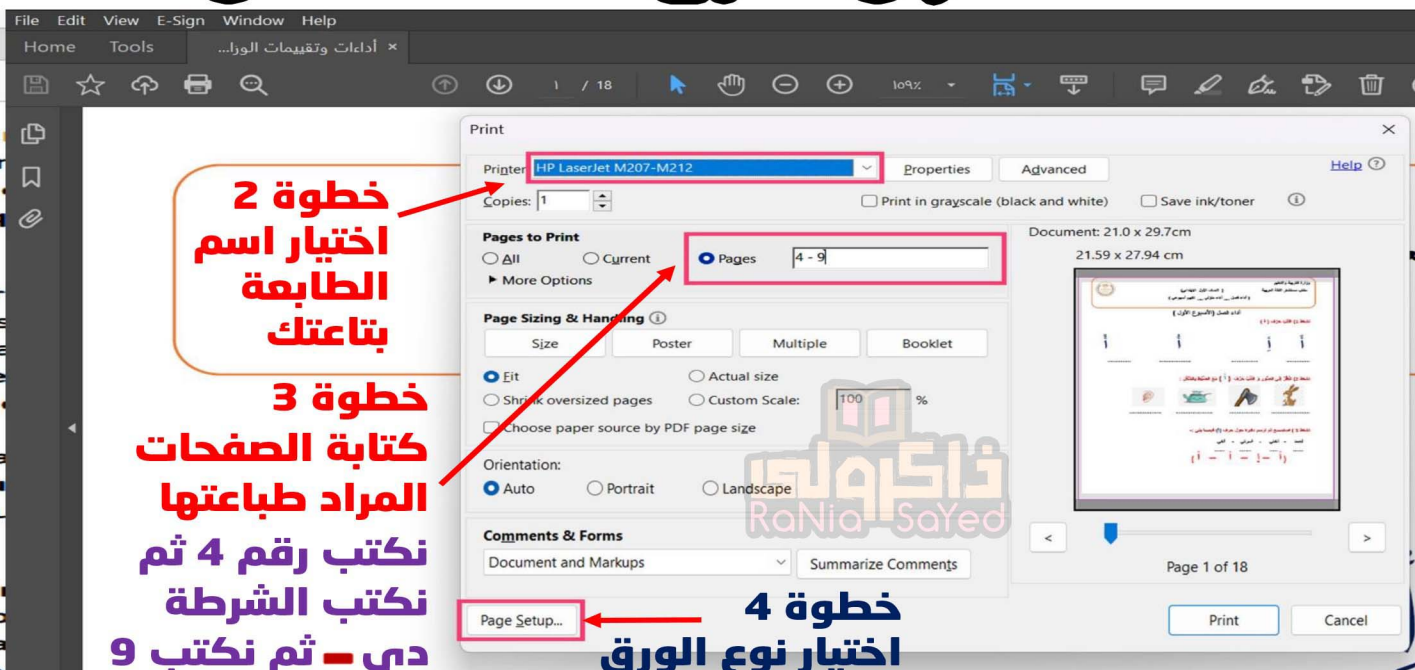
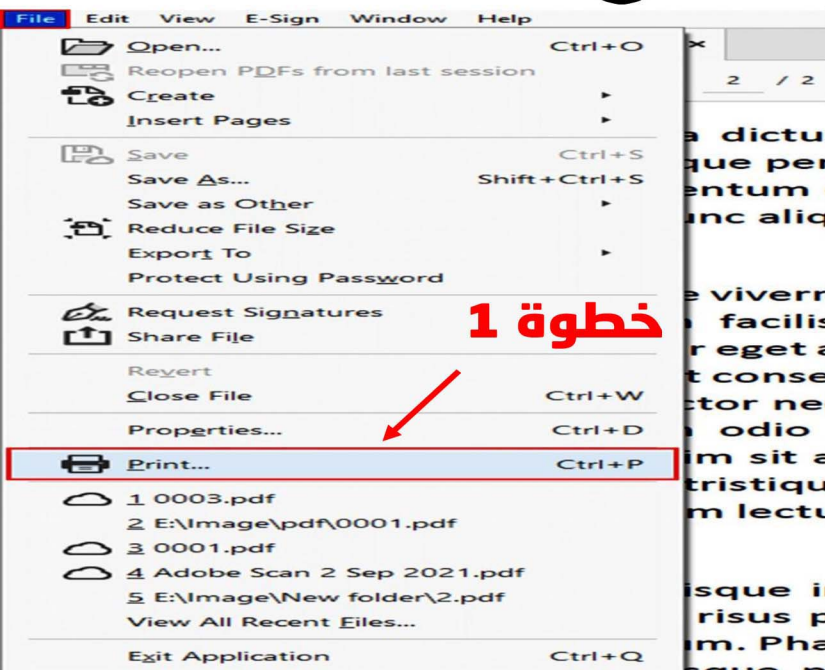
$$= 9x^2 + 4x$$

$$= 9(-2)^2 + 4 \times -2 = 36 - 8 = 28$$

- e Draw the triangle ABC where $AB = 4$ cm, $AC = 6$ cm and $m(\angle BAC) = 100^\circ$



كيفية طباعة صفحات معينة من ملف معين مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9



حمل الآن

مجاناً وحصرياً

المراجعة رقم (2)

اختبار شهر مارس





Test

1

Total mark

15

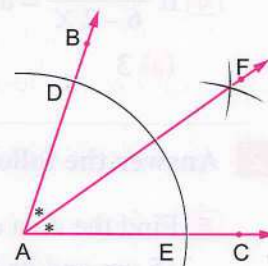
1 Choose the correct answer from the given ones :

- 1 Which of the following is the image of the point $(5, 0)$ by rotation $R(O, 90^\circ)$?
 (a) $(5, 0)$ (b) $(-5, 0)$ (c) $(0, 5)$ (d) $(0, -5)$
- 2 The length of the middle base in a trapezium is equal to 15 feet and its height is 8 feet. What is its area ?
 (a) 60 square feet. (b) 120 square feet
 (c) 240 square feet. (d) 23 square feet.
- 3 If $\frac{4x^3}{a} = 1$, then what is the value of a ?
 (a) 1 (b) 4 (c) $4x^3$ (d) $4x^2$
- 4 What is the image of the point (a, b) by reflection in the y -axis ?
 (a) $(a, -b)$ (b) $(-a, b)$ (c) $(b, -a)$ (d) $(-b, a)$

5 In the opposite figure :

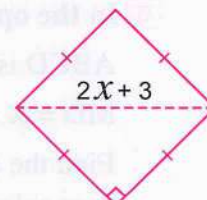
When bisecting $\angle BAC$ with a compass makes ,
 you find that : $m(\angle BAF) = \dots\dots\dots$

- (a) $m(\angle BFA)$ (b) $m(\angle EAF)$
 (c) $m(\angle EFA)$ (d) $m(\angle BAC)$



2 Answer the following questions :

- 1 If $(2x + 3)$ is one factor of the expression $(2x^2 - 15 - 7x)$, find the other factor.
- 2 Draw the triangle ABC with vertices $A(-2, 3)$, $B(1, 4)$, and $C(0, 6)$, then find its image by translation $(x, y) \longrightarrow (x + 2, y - 1)$
- 3 If the area of a rhombus is 120 square centimeters and the length of one of its diagonals is 10 cm, then find the length of the other diagonal.
- 4 Find the area of the opposite square in terms of x , then find the numerical value of the area when $x = 3$
- 5 Draw $\triangle ABC$ where $AB = 6$ cm, $m(\angle A) = 90^\circ$, and $m(\angle B) = 45^\circ$, then bisect $\angle A$ with the bisector \overline{AD} which intersects \overline{BC} at point D. Determine the type of the triangle ABD according to the lengths of its sides.



Test 2

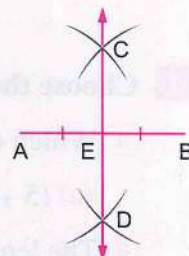
Total mark

15

1 Choose the correct answer from the given ones :

- 1 When bisecting the line segment \overline{AB} by a compass ,
you must have

(a) $AC < \frac{1}{2} AB$ (b) $AC < AD$
(c) $AC > \frac{1}{2} AB$ (d) $AC < AE$



- 2 $\div 8 a b = 4 a b$

(a) 2 (b) $12 a b$ (c) $2 a^2 b^2$ (d) $32 a^2 b^2$

- 3 The product of the length of two diagonals of a square is 16 square meters.
What is its area in square meters?

(a) 4 (b) 8 (c) 32 (d) 128

- 4 What is the point whose image by rotation $R(O, 180^\circ)$ is $(-3, 1)$?

(a) $(3, 1)$ (b) $(1, 3)$ (c) $(-1, 3)$ (d) $(3, -1)$

- 5 If $\frac{2x-6}{6-2x} = a$, then what is the value of a ?

(a) 3 (b) -3 (c) -2 (d) -1

2 Answer the following questions :

- 5 Find the area of the trapezium whose lengths of the two parallel bases are 7 cm and 15 cm and its height is 8 cm.

- 2 If the expression $(x^3 - x^2 - 4x + m)$ is divisible by $(x - 3)$, find the value of m.

- 3 Draw the square ABCD with vertices A $(-1, 2)$, B $(1, 0)$, C $(3, 2)$ and D $(1, 4)$,
then draw its image by reflection in the X-axis.

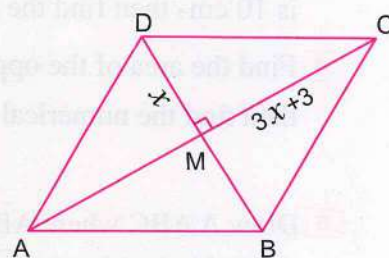
- 4 Draw the equilateral triangle ABC with each side of length 6 cm.

- 5 In the opposite figure :

ABCD is a rhombus its diagonals intersecting at M.

$MD = x$, $MC = 3x + 3$

Find the area of the rhombus in terms of x ,
then calculate the numerical value of the area
when $x = 7$



Assessment of Unit Two from the School Book



► Choose the correct answer from the given ones :

1 If $-2x^3 \times x = ax^n$, what is the value of $a + n$?

(a) -3

(b) -2

(c) 2

(d) 3

2 If $x \in \mathbb{Z}$, which of the following is a solution to the inequality $1 - 2x < 3$?

(a) 0

(b) -1

(c) -2

(d) -4

3 If $(x - 2)(x + 2) - 5 = 0$, what is the value of x where $x < 0$?

(a) -9

(b) -2

(c) -1

(d) -3

4 A rectangle has an area of $(x^2 + 6x + 8)$ square units and a length of $(x + 4)$ length units, what is the width of the rectangle ?

(a) x

(b) $x + 2$

(c) $x - 2$

(d) $x - 4$

► Complete the following :

5 $\frac{a^2 - a}{a - 1} = \dots\dots\dots$

6 The coefficient of ab in the product $(2a - 3b) \times (a - b)$ equals

7 The solution set of the inequality $2x - 1 > x + 2$ in \mathbb{Z} equals

8 If $(3x - 4)^2 = ax^2 + bx + c$, then $b = \dots\dots\dots$

► Answer the following questions :

9 Find in simplest form the product $(x - 3)(2x^2 - x + 4)$ and then find the numerical value of the result when $x = -1$

10 Find the solution set of the inequality $2(3x - 1) \geq 4x - 3$ in \mathbb{Q}

11 Find the quotient of $(-2x^2y + 4xy^2 - 6xy)$ divided by $(-2xy)$

12 If the length of each side of a square is increased by 3 cm, its area increases by 51 square centimeters, what was the length of a side of the square before the increase?



First Group :

► Choose the correct answer from the given ones :

- 1 $\div (-3x^2y) = 5xy^2$
 - (a) $15x^2y^2$
 - (b) $-15x^3y^3$
 - (c) $\frac{5}{3}xy$
 - (d) $-\frac{3}{5}xy$
- 2 If $(x+3)(x-2) = x^2 + bx + c$, then what is the value of c ?
 - (a) -1
 - (b) 1
 - (c) 6
 - (d) -6
- 3 If $x - 3 > 5$, then which of the following could be the value of x ?
 - (a) 6
 - (b) 7
 - (c) 8
 - (d) 9
- 4 If a cube with an edge length of $3x$, then what is its volume?
 - (a) $6x^2$
 - (b) $9x^2$
 - (c) $27x^3$
 - (d) $9x$
- 5 $(12a + 4) \div 4 = \dots\dots\dots$
 - (a) $3a$
 - (b) $3a + 4$
 - (c) $3a + 1$
 - (d) $3a + 8$
- 6 $18ab^2 \div \dots\dots\dots = -3a$
 - (a) $-54a^2b^3$
 - (b) $54a^2b^2$
 - (c) $-6ab$
 - (d) $-6b^2$
- 7 Which of the following inequalities has one of its solutions is $x = -3$ in \mathbb{Q} ?
 - (a) $x - 1 \geq -3$
 - (b) $2x < -8$
 - (c) $x + 1 > -6$
 - (d) $-2x < -6$
- 8 If $x + y = 7$, and $x - y = 3$, then what is the value of $x^2 - y^2$?
 - (a) 21
 - (b) 10
 - (c) 4
 - (d) 16
- 9 $(-3a^2b)(2ab)(-6a) = \dots\dots\dots$
 - (a) $-36a^4b^2$
 - (b) $36a^4b^2$
 - (c) $-7a^3b^2$
 - (d) $36abc$

Second Group :

► Answer the following questions :

1 Find the solution set for each of the following inequalities :

① $1 - 3x < 7$ in \mathbb{Z}

② $2(x - 5) - 3 \geq 15$ in \mathbb{Q}

2 Simplify to its simplest form : $(x - y)^2 - x^2$, then find the numerical value of the result when $x = -1$ and $y = 2$

3 If the area of a rectangle equals $(6x^3 + 18x^4 - 12x^2)$ square units and one of its dimensions is $(6x^2)$ length units , then find the other dimension in terms of x

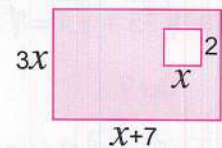
4 If $(x + 3)$ is one of the factors of the expression $(x^2 - 2x - 15)$, find the other factor.

5 Find in the simplest form the result of each of the following :

① $(x - 3)(x^2 - 2x + 6)$

② $(7a - 2b)(3a + 5b)$

6 Find in the simplest form the algebraic expression that represents the area of the shaded part.



7 A cuboid with a volume of $(4x^2 + 12xy + 9y^2)$ cubic units and its base area of $(2x + 3y)$ square units. Find its height in terms of x and y

Cumulative Exam



Till Unit Two

First Group :

► Choose the correct answer from the given ones :

- 1 Which of the following expresses $\frac{x^3}{x^{-2}}$ in its simplest form ?
 (a) x^{-6} (b) x^6 (c) x (d) x^5
- 2 If $-x < 3$, then which of the following is true ?
 (a) $x \leq 3$ (b) $x > -3$ (c) $x < 3$ (d) $x < -3$
- 3 $\sqrt{25} + \sqrt{4} = \sqrt{\dots\dots\dots}$
 (a) 7 (b) 29 (c) 49 (d) 841
- 4 $(5r^3s^2t)(-rt^4) = \dots\dots\dots$
 (a) $-5r^4st^5$ (b) $5r^2st^3$ (c) $-5r^3s^2t^4$ (d) $-5r^4s^2t^5$
- 5 If the number $x \times 10^{-7}$ is written in scientific notation, then which of the following could be the value of x ?
 (a) 13.7 (b) -5.8 (c) -0.6 (d) 10.2
- 6 If $(x+y)^2 = 20$, and $x^2 + y^2 = 6$, then what is the value of xy ?
 (a) 7 (b) 14 (c) 17 (d) 40
- 7 $\frac{24x^2y^3z}{\dots\dots\dots} = -2xyz$
 (a) $-48x^3y^4z^2$ (b) $-12xy^2z$ (c) $-12xy^2$ (d) $12xyz$
- 8 If $(x-7)(x+7) = x^2 + a$, then what is the value of a ?
 (a) 49 (b) -49 (c) 14 (d) -14
- 9 $3^x + 3^x + 3^x = \dots\dots\dots$
 (a) 3^3x (b) 9^x (c) 3^{3x+1} (d) 3^{x+1}

Second Group :

► Answer the following questions :

- 1 Find the quotient of : $\frac{3ab^2 + 9a^2b - 6a^2b^2}{3ab}$

2 Find in the simplest form the result of each of the following :

① $(m - 5n)(m + 3n)$

② $(2x - 7)^2$

③ $(x^2 - 1)(x^2 + 1)$

3 Find the value of x if : $3x^3 + 15 = 96$

4 Find the solution set for each of the following inequalities :

① $\frac{1}{3}x - 1 \geq 2$ in \mathbb{Z}

② $2(2x + 3) \leq 5x + 2$ in \mathbb{Q}

5 Simplify to the simplest form : $4(3x^2 + 5x) - x(x^2 - 7x + 8)$

6 If the expression $(x^2 + x - m)$ is divisible by $(x + 4)$, then find the value of m .

7 Find the result of each of the following in scientific notation :

① $(12.8 \times 10^7) - (6.2 \times 10^6)$

② $(4.8 \times 10^{-7}) \div (0.8 \times 10^4)$

Assessment of Unit Three from the School Book



► Choose the correct answer from the given ones :

- 1 A square with a diagonal length of 12 feet , its area = square feet.
(a) 36 (b) 72 (c) 144 (d) 180
- 2 Which of the following is the image of the point $(-2, -5)$ by reflection in the y-axis?
(a) $(2, 5)$ (b) $(2, -5)$ (c) $(-2, 5)$ (d) $(-5, -2)$
- 3 A trapezium with a height of 3 cm and a middle base length of 10 cm,
its area = square centimeters.
(a) 7.5 (b) 15 (c) 30 (d) 60
- 4 The rotation that makes the image of a shape is the shape itself is a rotation around the
origin by an angle of measure
(a) 90° (b) -90° (c) 180° (d) 360°

► Complete each of the following with the correct answer :

- 5 A rhombus with a side length of 15 cm and diagonal lengths of 18 cm and 24 cm,
its height = cm.
- 6 The translation that makes the point $\hat{A}(-3, 2)$ the image of the point A $(5, -3)$ is
- 7 A trapezium with a height of 5 cm and base lengths of 10 cm and 12 cm,
its area = square centimeters.
- 8 The image of the point $(4, 5)$ under the translation $(-2, 2)$ is

► Answer the following questions :

- 9 Draw an angle of measure 45° and then bisect it using a ruler and compass.
- 10 Draw the triangle ABC on a grid where A $(1, 2)$, B $(1, -1)$, C $(5, 2)$ and then draw its
image under the rotation R $(O, -90^\circ)$.
- 11 A trapezium with base lengths of 6 meters , X meters , and a height of 9 meters , has
an area of 72 square meters. Find the value of X.
- 12 Draw \overline{AB} on a grid where A $(2, 1)$, B $(3, 5)$ and then draw its image under reflection in
the X-axis followed by reflection in the y-axis.

**First Group :**

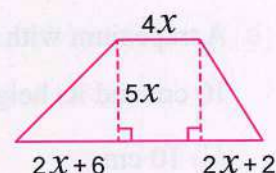
► Choose the correct answer from the given ones :

- 1 If the area of a rhombus is 28 square units , then what is the product of the diagonals lengths ?
(a) 14 (b) 28 (c) 56 (d) 112
- 2 What is the image of the point $(-7, -2)$ by reflection in the y-axis followed by reflection in the X-axis?
(a) $(7, 2)$ (b) $(-7, 2)$ (c) $(7, -2)$ (d) $(-2, 7)$
- 3 What is the image of the point $(-4, 1)$ by translation $(X, y) \longrightarrow (X + 1, y - 4)$?
(a) $(-5, -4)$ (b) $(-5, 5)$ (c) $(-3, -3)$ (d) $(2, -8)$
- 4 What is the image of the point $(-4, 2)$ under the rotation $R(O, 90^\circ)$?
(a) $(-2, 4)$ (b) $(-4, -2)$ (c) $(2, 4)$ (d) $(-2, -4)$
- 5 If the area of a square is 40.5 cm^2 , then what is the diagonal length in centimeters ?
(a) 5 (b) 4.5 (c) 9 (d) 20.25
- 6 A trapezium with an area of 54 square centimeters , the length of one of its parallel bases 10 cm and its height of 6 cm. What is the length of the other base?
(a) 10 cm (b) 8 cm (c) 6 cm (d) 12 cm
- 7 If the $\hat{A}(3, 5)$ is the image of the point A by translation $(X, y) \longrightarrow (X - 1, y + 2)$, then the point A is
(a) $(2, 7)$ (b) $(4, 3)$ (c) $(5, 3)$ (d) $(4, -3)$
- 8 What is the rotation that makes the image of the point A $(3, -2)$ is the point $\hat{A}(-3, 2)$?
(a) $R(O, 90^\circ)$ (b) $R(O, -90^\circ)$ (c) $R(O, 270^\circ)$ (d) $R(O, 180^\circ)$
- 9 If a rhombus with diagonal lengths of 6 inches and 10 inches , then what is its area ?
(a) 30 square inches (b) 60 square inches
(c) 16 square inches (d) 120 square inches

Second Group :

► Answer the following questions :

- 1 Draw $\angle ABC$ of measure 120° and then bisect it using a ruler and compass with the bisector \overline{BD} , illustrating the steps of the solution.
- 2 Find the diagonal length of the square whose area is equal to the area of a rhombus with diagonal lengths of 4 cm and 16 cm.
- 3 Draw the triangle which its vertices are $A(1, 0)$, $B(4, 3)$ and $C(-1, 6)$, then draw its image by reflection in the y-axis.
- 4 Draw $\triangle ABC$ where $A(-3, -1)$, $B(2, 0)$ and $C(1, 3)$, then draw its image by translation $(-3, 1)$ followed by translation $(-1, 2)$.
- 5 Draw the rectangle ABCD where $A(1, 1)$, $B(5, 1)$, $C(5, -2)$ and $D(1, -2)$, then draw its image by rotation $R(O, -90^\circ)$.
- 6 Draw $\triangle XYZ$ where $XY = 5$ cm, $YZ = 4$ cm, and $XZ = 3$ cm, then determine the type of the triangle according to the measures of its angles.
- 7 Find in terms of X the area of the opposite trapezium.



**First Group :**

► Choose the correct answer from the given ones :

1 If $a^x \times a^7 = a^{14}$, then $x = \dots\dots\dots$

- (a) 2 (b) -2 (c) 7 (d) -7

2 What is the image of the point $(-4, 0)$ by rotation $R(O, 90^\circ)$ followed by rotation $R(O, -90^\circ)$?

- (a) $(-4, 0)$ (b) $(4, 0)$ (c) $(0, 4)$ (d) $(0, -4)$

3 A trapezium with an area of 320 square feet and a height of 16 feet, what is the length of its middle base ?

- (a) 16 (b) 20 (c) 40 (d) 60

4 What is the inequality that expresses twice the number x is greater than 9 ?

- (a) $x + 2 > 9$ (b) $2x < 9$ (c) $2x > 9$ (d) $2x \geq 9$

5 $x(x - 3) + x = \dots\dots\dots$

- (a) $x^2 - 3 + x$ (b) $x^2 - 4x$ (c) $x^2 - 2x$ (d) $x - 3$

6 The image of the point $\dots\dots\dots$ is the same point by reflection in the x -axis.

- (a) $(-3, 0)$ (b) $(0, 2)$ (c) $(-4, 10)$ (d) $(-2, -5)$

7 A cube with a volume of 1,728 cubic units, what is the length of its edge ?

- (a) 8 (b) 11 (c) 12 (d) 14

8 A square with diagonal length of 10 feet and a parallelogram with base length of 12 feet and the corresponding height is 6 feet, what is the sum of their areas ?

- (a) 172 square feet (b) 160 square feet
(c) 122 square feet (d) 86 square feet

9 What is the image of the point $(7, -4)$ by translation of 5 units in the negative direction of the x -axis ?

- (a) $(2, -9)$ (b) $(7, -9)$ (c) $(7, 1)$ (d) $(2, -4)$

Second Group :

► Answer the following questions :

- 1 Draw \overline{AB} with a length of 7 cm , then bisect it using a ruler and compass at point C , illustrating the steps of the solution.
- 2 Find the quotient of $2 + 2y^2 - 5y$ divided by $y - 2$.
- 3 Find the simplest form of $\frac{(-a)^3 \times a^5}{(-a)^4 \times a^2}$
- 4 Draw in the coordinate plane \overline{AB} where A (- 2 , 0) and B (1 , 3) , then draw the image of \overline{AB} by rotation R (O , 90°) followed by rotation R (O , 180°).
- 5 A trapezium has an area of 105 square centimeters and a height of 7 centimeters. If the ratio between the lengths of its two bases is 2 : 3. What is the length of each base?
- 6 Find the solution set for each of the following in \mathbb{Z} :
 - ① $2(x + 5) - 7 > 9$
 - ② $2x^2 + 1 = 33$
- 7 Draw the triangle ABC where $m(\angle ABC) = 40^\circ$, $m(\angle ACB) = 70^\circ$, and $BC = 5$ cm , then determine by measuring the type of triangle according to the lengths of its sides.

حمل الآن

مجاناً وحصرياً

المراجعة رقم (3)

اختبار شهر مارس



Unit 2***Q1 / Choose the correct answer:-***

- 1) What is the number of terms in the expression resulting from the product of $(x-3)(x+4)$ in the simplest form ?
a) 1 b) 2 c) 3 d) 4
- 2) If $(x-5)(x+2) = x^2+bx+c$, then $c=$
a) 10 b) 7 c) -10 d) -7
- 3) If $(3x-7)^2 = ax^2+bx+c$, then $b=$
a) 21 b) 42 c) -21 d) -42
- 4) I If $(x-3)(x+3) = x^2-k$, then $k=$
a) 6 b) 9 c) -6 d) -9
- 5) What is the coefficient of **ab** in the expression $(4a-5b)^2$?
a) 20 b) 40 c) -20 d) -40
- 6) If $x-y=5$, $x+y=15$, then what is the value of x^2-y^2 ?
a) 10 b) 20 c) 3 d) 75
- 7) If $(x+y)^2=16$, $xy=3$ then what is the value of x^2+y^2 ?
a) 10 b) 48 c) 13 d) $5\frac{1}{3}$
- 8) If $y^2=7$, $x^2=10$, then what is the value of $(x+y)(x-y)$?
a) 17 b) 17 c) 3 d) -3
- 9) If $(x+y)^2=26$, $x^2+y^2=20$, what is the value of xy ?
a) 3 b) 6 c) 9 d) 12
- 10) $-12x^3 \div (-4x) =$
a) $-3x^2$ b) $3x^2$ c) $48x^4$ d) $-3x$
- 11) If $\frac{8x}{a} = 1$, then $a=$
a) 1 b) -1 c) $8x$ d) $-8x$

12) $\frac{a+b}{c} = \dots\dots\dots$

a) $\frac{a}{c} + b$

b) $a + \frac{b}{c}$

c) $\frac{ab}{c}$

d) $\frac{a}{c} + \frac{b}{c}$

13) $(x^2 \div x) + x = \dots\dots\dots$

a) $2x$

b) 0

c) $x+1$

d) $2x+1$

14) $\frac{3x^2-6x}{3x} = \dots\dots\dots$

a) $-x^2$

b) $-x$

c) $x-2$

d) x^2-2x

15) $10ab^2 \div \dots\dots\dots = -2ab$

a) $-5b$

b) $5b$

c) $-5b^2$

d) $-12ab$

Q2 / Complete the following :-

1) $(x+2)(x+3) = \dots\dots\dots +5x+6$

2) $(a-7)(a-3) = a^2 - \dots\dots\dots + \dots\dots\dots$

3) $\dots\dots\dots \div 7a^3 = -5a^2$

4) $(15a+5) \div 5 = \dots\dots\dots$

5) $\frac{-24x^4}{\dots\dots\dots} = -6x^3$



Q3 / Answer the following :-

1) Find in the simplest form :-

a) $(3x+1)(x-3)$

b) $(x-7)(2x-1)$

c) $(x-6)^2$

d) $(2x-9)^2$

e) $-32a^3b^6 \div (-4a^3b^2)$

f) $(2x - 6x^2 - 8x^3) \div (2x)$

g) $\frac{18x^2y^2}{-2x^2y}$

h) $\frac{3xy^2 + 6x^2y - 9x^2y^2}{3xy}$

i) $\frac{x^2}{-x} + \frac{-4x}{x} - \frac{3x^3}{x^2}$

j) $(X^2+5x+6) \div (x+2)$

2) If: $(x - 5)(x + 5) = x^2 + bx + c$, then what is the value of b ?

3) If $(2x + 1)$ is a factor of the expression $(2x^2 - 7x - 4)$, then find the other factor ?

Unit 3

Areas

Area of rectangle = $L \times W$

Area of triangle = $\frac{1}{2} \times \text{base} \times \text{height}$

Area of parallelogram = $\text{base} \times \text{height}$

Area of rhombus = $\text{base} \times \text{height}$

Area of rhombus = $\frac{1}{2} \times \text{diagonal}_1 \times \text{diagonal}_2 = \frac{1}{2} \times d^2$

$$d_1 = \frac{2 \times \text{area}}{d_2}$$

$$d_2 = \frac{2 \times \text{area}}{d_1}$$

Area of square = $S \times S = S^2$

Area of square = $\frac{1}{2} \times \text{diagonal}_1 \times \text{diagonal}_2 = \frac{1}{2} \times$

$$d_1 = \frac{2 \times \text{area}}{d_2}$$

$$d_2 = \frac{2 \times \text{area}}{d_1}$$

Area of trapezium = $\frac{1}{2} \times (b_1 + b_2) \times h$

Area of trapezium = $\text{middle base} \times h$

$$\text{Middle base of trapezium} = \frac{1}{2} \times (b_1 + b_2)$$

$$\text{base}_1 \text{ of trapezium} = (2 \times \text{middle base}) - \text{base}_2$$

Q1 / Choose the correct answer:-

1) If the area of rhombus is 100 cm^2 , what is the product of its diagonals ?

- a) 50 b) 25 c) 100 d) 200

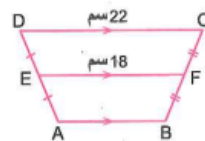
2) If the area of rhombus is 20 cm^2 and the length of one of its diagonals is 5cm , what is the length of the other diagonal diagonals ?

- a) 4cm b) 8cm c) 10cm d) 15cm

3) Area of square whose side length 4cm area of square whose diagonal is 5cm

- a) = b) > c) <

4) from the opposite figure , what is the length of AB ?



- a) 26cm b) 28cm c) 20cm d) 14cm

5) Which of the following is the image of the point $(-1,3)$ by reflection in the X-axis ?

- a) $(-1,-3)$ b) $(1,-3)$ c) $(1,3)$ d) $(3,-1)$

6) Which of the following is the image of the point (a,b) by reflection in the X-axis ?

- a) $(-a,-b)$ b) $(-a,b)$ c) $(a,-b)$ d) $(b,-a)$

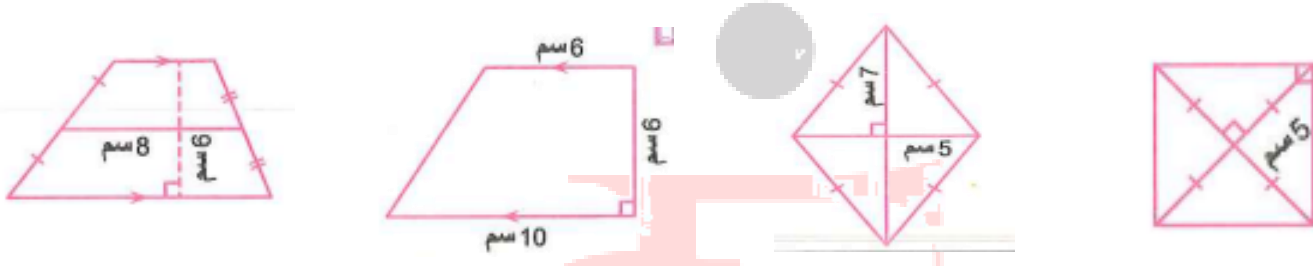
7) Which of the following points remains the same when reflected in the Y-axis ?

- a) $(2,-3)$ b) $(3,2)$ c) $(0,7)$ d) $(-3,0)$

- 8) Which of the following points remains the same when reflected in the X-axis ?
- a) (2, -3) b) (3, 2) c) (0, 7) d) (-3, 0)
- 9) If the image of the point (7, 3a-12) is the same when reflected in X-axis , what is the value of a?
- a) 4 b) 12 c) -4 d) 3
- 10) What is the image of the point (2, -3) by reflection in the X-axis followed by reflection in the Y-axis ?
- a) (-2, -3) b) (2, 3) c) (-2, 3) d) (3, 2)

Q2 / Answer the following :-

- 1) Find the area of the following figures :-



- 2) Draw an angle whose measure is 45° then bisect it.
- 3) Draw an angle whose measure is 120° then bisect it.
- 4) Draw line segment AB whose length = 5cm then bisect it.
- 5) Draw triangle ABC that $AB=7\text{cm}$, $BC=9\text{cm}$, $AC=4\text{cm}$, then determine the type of triangle according its angles.
- 6) Draw triangle ABC that $AB=5\text{cm}$, $m(\angle A)=120^\circ$, $m(\angle B)=30^\circ$, then determine the type of triangle according its sides.
- 7) Draw triangle ABC that $AB=7\text{cm}$, $BC=5\text{cm}$, $m(\angle ABC)=80^\circ$.

Answers

Unit 2

Q1 / Choose the correct answer:-

- 1) What is the number of terms in the expression resulting from the product of $(x-3)(x+4)$ in the simplest form ?
 a) 1 b) 2 **c) 3** d) 4
- 2) If $(x-5)(x+2) = x^2+bx+c$, then $c=$
 a) 10 b) 7 **c) -10** d) -7
- 3) If $(3x-7)^2 = ax^2+bx+c$, then $b=$
 a) 21 b) 42 c) -21 **d) -42**
- 4) I If $(x-3)(x+3) = x^2-k$, then $k=$
 a) 6 **b) 9** c) -6 d) -9
- 5) What is the coefficient of **ab** in the expression $(4a-5b)^2$?
 a) 20 b) 40 c) -20 **d) -40**
- 6) If $x-y=5$, $x+y=15$, then what is the value of x^2-y^2 ?
 a) 10 b) 20 c) 3 **d) 75**
- 7) If $(x+y)^2=16$, $xy=3$ then what is the value of x^2+y^2 ?
a) 10 b) 48 c) 13 d) $5\frac{1}{3}$
- 8) If $y^2=7$, $x^2=10$, then what is the value of $(x+y)(x-y)$?
 a) 17 b) 17 **c) 3** d) -3
- 9) If $(x+y)^2=26$, $x^2+y^2=20$, what is the value of xy ?
a) 3 b) 6 c) 9 d) 12
- 10) $-12x^3 \div (-4x) =$
a) $-3x^2$ b) $3x^2$ c) $48x^4$ d) $-3x$
- 11) If $\frac{8x}{a} = 1$, then $a=$
 a) 1 b) -1 **c) $8x$** d) $-8x$

12) $\frac{a+b}{c} = \dots\dots\dots$

a) $\frac{a}{c} + b$

b) $a + \frac{b}{c}$

c) $\frac{ab}{c}$

d) $\frac{a}{c} + \frac{b}{c}$

13) $(x^2 \div x) + x = \dots\dots\dots$

a) $2x$

b) 0

c) $x+1$

d) $2x+1$

14) $\frac{3x^2-6x}{3x} = \dots\dots\dots$

a) $-x^2$

b) $-x$

c) $x-2$

d) x^2-2x

15) $10ab^2 \div \dots\dots\dots = -2ab$

a) $-5b$

b) $5b$

c) $-5b^2$

d) $-12ab$

Q2 / Complete the following :-

1) $(x+2)(x+3) = x^2 + 5x + 6$

2) $(a-7)(a-3) = a^2 - 10a + 21$

3) $-35a^5 \div 7a^3 = -5a^2$

4) $(15a+5) \div 5 = 3a + 1$

5) $\frac{-24x^4}{4x} = -6x^3$



Q3 Answer the following :-

1) Find in the simplest form :-

a) $(3x+1)(x-3) = 3x^2 - 8x - 3$

b) $(x-7)(2x-1) = 2x^2 - 15x + 7$

c) $(x-6)^2 = x^2 - 12x + 36$

d) $(2x-9)^2 = 4x^2 - 36x + 81$

e) $-32a^3b^6 \div (-4a^3b^2) = 8b^4$

f) $(2x - 6x^2 - 8x^3) \div (2x) = 1 - 3x - 4x^2$

g) $\frac{18x^2y^2}{-2x^2y} = -9y$

h) $\frac{3xy^2 + 6x^2y - 9x^2y^2}{3xy} = y + 2x - 3xy$

i) $\frac{x^2}{-x} + \frac{-4x}{x} - \frac{3x^3}{x^2} = -x - 4 - 3x = -4x - 4$

j) $(X^2+5x+6) \div (x+2) = x + 3$

2) If: $(x - 5)(x + 5) = x^2 + bx + c$, then what is the value of b ?
 $b = \text{zero}$

3) If $(2x + 1)$ is a factor of the expression $(2x^2 - 7x - 4)$, then find the other factor ?
 $(x-4)$

Unit 3

Areas

Area of rectangle = $L \times W$

Area of triangle = $\frac{1}{2} \times \text{base} \times \text{height}$

Area of parallelogram = $\text{base} \times \text{height}$

Area of rhombus = $\text{base} \times \text{height}$

Area of rhombus = $\frac{1}{2} \times \text{diagonal}_1 \times \text{diagonal}_2 = \frac{1}{2} \times d^2$

$$d_1 = \frac{2 \times \text{area}}{d_2}$$

$$d_2 = \frac{2 \times \text{area}}{d_1}$$

Area of square = $S \times S = S^2$

Area of square = $\frac{1}{2} \times \text{diagonal}_1 \times \text{diagonal}_2 = \frac{1}{2} \times$

$$d_1 = \frac{2 \times \text{area}}{d_2}$$

$$d_2 = \frac{2 \times \text{area}}{d_1}$$

Area of trapezium = $\frac{1}{2} \times (b_1 + b_2) \times h$

Area of trapezium = $\text{middle base} \times h$

$$\text{Middle base of trapezium} = \frac{1}{2} \times (b_1 + b_2)$$

$$\text{base}_1 \text{ of trapezium} = (2 \times \text{middle base}) - \text{base}_2$$

Q1 / Choose the correct answer:-

1) If the area of rhombus is 100 cm^2 , what is the product of its diagonals ?

- a) 50 b) 25 c) 100 **d) 200**

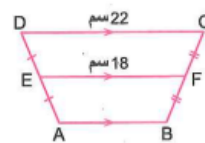
2) If the area of rhombus is 20 cm^2 and the length of one of its diagonals is 5 cm , what is the length of the other diagonal diagonals ?

- a) 4 cm **b) 8 cm** c) 10 cm d) 15 cm

3) Area of square whose side length 4 cm area of square whose diagonal is 5 cm

- a) = **b) >** c) <

4) from the opposite figure , what is the length of AB ?



- a) 26 cm b) 28 cm c) 20 cm **d) 14 cm**

5) Which of the following is the image of the point $(-1, 3)$ by reflection in the X-axis ?

- a) $(-1, -3)$** b) $(1, -3)$ c) $(1, 3)$ d) $(3, -1)$

6) Which of the following is the image of the point (a, b) by reflection in the X-axis ?

- a) $(-a, -b)$ b) $(-a, b)$ **c) $(a, -b)$** d) $(b, -a)$

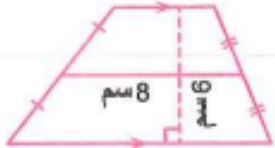
7) Which of the following points remains the same when reflected in the Y-axis ?

- a) $(2, -3)$ b) $(3, 2)$ **c) $(0, 7)$** d) $(-3, 0)$

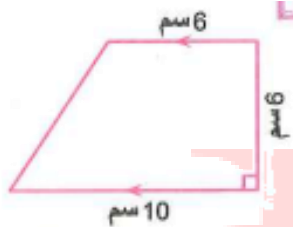
- 8) Which of the following points remains the same when reflected in the X-axis ?
- a) (2, -3) b) (3, 2) c) (0, 7) d) (-3, 0)
- 9) If the image of the point (7, 3a-12) is the same when reflected in X-axis , what is the value of a?
- a) 4 b) 12 c) -4 d) 3
- 10) What is the image of the point (2, -3) by reflection in the X-axis followed by reflection in the Y-axis ?
- a) (-2, -3) b) (2, 3) c) (-2, 3) d) (3, 2)

Q2 / Answer the following :-

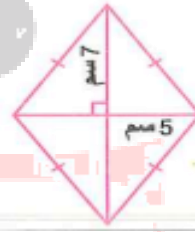
- 1) Find the area of the following figures :-



$$8 \times 6 = 48 \text{ cm}^2$$



$$\frac{1}{2} \times (6+10) \times 6 = 48 \text{ cm}^2$$



$$\frac{1}{2} \times 14 \times 10 = 70 \text{ cm}^2$$



$$\frac{1}{2} \times 10^2 = 50 \text{ cm}^2$$

- 2) Draw an angle whose measure is 45° then bisect it.

Draw by yourself.

- 3) Draw an angle whose measure is 120° then bisect it.

Draw by yourself.

- 4) Draw line segment AB whose length = 5cm then bisect it.

Draw by yourself.

- 5) Draw triangle ABC that $AB=7\text{cm}$, $BC=9\text{cm}$, $AC=4\text{cm}$, then determine the type of triangle according its angles.

Draw by yourself.

- 6) Draw triangle ABC that $AB=5\text{cm}$, $m(\angle A)=120^\circ$, $m(\angle B)=30^\circ$, then determine the type of triangle according its sides.

Draw by yourself.

- 7) Draw triangle ABC that $AB=7\text{cm}$, $BC=5\text{cm}$, $m(\angle ABC)=80^\circ$.

Draw by yourself.

حمل الآن

مجاناً وحصرياً

المراجعة رقم (4)

اختبار شهر مارس



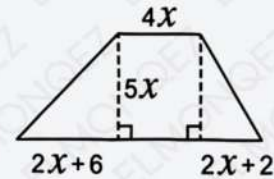
Question 1 : Choose the correct answer :

- 1 $-24x^2y^3 \div (-6x^2) = \dots\dots$
 - a $4x^2$
 - b $4y^2$
 - c $4x^4y^3$
 - d $4y^3$
- 2 A square with a diagonal length of 12 feet has an area of $\dots\dots$ square feet.
 - a 36
 - b 72
 - c 144
 - d 180
- 3 Which of the following points remains the same when reflected in the y-axis ?
 - a $(-7,0)$
 - b $(0,3)$
 - c $(-2,5)$
 - d $(4,-10)$
- 4 What is the image of the point $(-4,0)$ by rotation $R(0,90^\circ)$ followed by rotation $R(0,-90^\circ)$?
 - a $(-4,0)$
 - b $(4,0)$
 - c $(0,4)$
 - d $(0,-4)$
- 5 If a rhombus with diagonal lengths of 6 inches and 10 inches, then what is its area ?
 - a 30 square inches
 - b 60 square inches
 - c 16 square inches
 - d 120 square inches
- 6 $\frac{24x^2y^3z}{\dots\dots\dots} = -2xyz$
 - a $-48x^3y^4z^2$
 - b $-12xy^2z$
 - c $-12xy^2$
 - d $12xyz$
- 7 If the $A(3,5)$ is the image of the point A by translation $(x,y) \rightarrow (x-1,y+2)$, then the point A is $\dots\dots$
 - a $(2,7)$
 - b $(4,3)$
 - c $(5,3)$
 - d $(4,-3)$
- 8 The image of the point $\dots\dots\dots$ is the same point by reflection in the X-axis.
 - a $(-3,0)$
 - b $(0,2)$
 - c $(-4,10)$
 - d $(-2,-5)$
- 9 When bisecting the line segment \overline{AB} by a compass, you must have $\dots\dots$
 - a $AC < \frac{1}{2} AB$
 - b $AC < AD$
 - c $AC > \frac{1}{2} AB$
 - d $AC < AE$



Question 2 : Answer the following :

- ① Find the length of the diagonal of the square whose area equal to the area of a rhombus with diagonal lengths of 4 meters and 16 meters.
- ② Draw the rectangle ABCD where A (2 , 1) , B (2 , 3) , C (-3, 3) , and D (- 3, 1) , then draw its image by reflection in the X-axis.
- ③ Find the quotient of : $(x^2 - 20 - x)$ divided by $(x - 5)$
- ④ Draw an equilateral triangle with a perimeter of 18 cm.
- ⑤ Find in terms of x the area of the opposite trapezium.
- ⑥ Find the image of the polygon ABCD by rotation R (O , -270°) where A (2,0) , B (2,4) , C (0,4) , D (0,2)
- ⑦ Draw ΔABC where $AB = 6$ cm , $BC = 5$ cm and $m(\angle B) = 70^\circ$, then determine the type of triangle according to the measures of its angles.

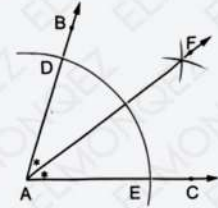


Model (2)

Question 1 : Choose the correct answer :

- ① Which of the following is the image of the point (5,0) by rotation R (0,90°) ?
 (a) (5,0) (b) (-5,0) (c) (0,5) (d) (0, -5)
- ② The length of the middle base in a trapezium is equal to 15 feet and its height is 8 feet. What is its area?
 (a) 60 square feet (b) 120 square feet
 (c) 240 square feet (d) 23 square feet

- 3 If $\frac{4x^3}{a} = 1$, then what is the value of a ?
 (a) 1 (b) 4 (c) $4x^3$ (d) $4x^2$
- 4 What is the image of the point (a,b) by reflection in the y-axis ?
 (a) (a, -b) (b) (-a, b) (c) (b, -a) (d) (-b, a)
- 5 In the opposite figure : When bisecting $\angle BAC$ with a compass makes you find that: $m(\angle BAF) = \dots\dots$
 (a) $m(\angle BFA)$ (b) $m(\angle EAF)$
 (c) $m(\angle EFA)$ (d) $m(\angle BAC)$
- 6 $\dots\dots \div 8ab = 4ab$
 (a) 2 (b) $12ab$ (c) $2a^2b^2$ (d) $32a^2b^2$
- 7 What is the point whose image by rotation $R(0, 180^\circ)$ is (-3,1) ?
 (a) (3,1) (b) (1,3) (c) (-1,3) (d) (3, -1)
- 8 The product of the length of two diagonals of a square is 16 square meter. What is its area in square meters?
 (a) 4 (b) 8 (c) 32 (d) 128
- 9 If $\frac{2x-6}{6-2x} = a$, then what is the value of a ?
 (a) 3 (b) -3 (c) -2 (d) -1



Question 2 : Answer the following :

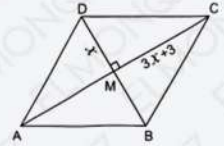
- 1 Find the area of the trapezium whose lengths of the two parallel bases are 7 cm and 15 cm and its height is 8 cm.
- 2 If the expression $(x^3 - x^2 - 4x + m)$ is divisible by $(x - 3)$, find the value of m.
- 3 Draw the square ABCD with vertices A(-1,2) , B(1,0) , C(3,2) and D(1,4) , then draw its image by reflection in the X-axis.
- 4 Draw the equilateral triangle ABC with each side of length 6 cm.

5

In the opposite figure :

ABCD is a rhombus its diagonals intersecting at M.

MD = X , MC = 3X + 3 find the area of the rhombus in terms of X , then calculate the numerical value of the area when X = 7



6

Draw a line segment \overline{AB} of length 5 cm , then bisect it using a ruler and compass.

7

Find the quotient of : $\frac{3ab^2+9a^2b-6a^2b^2}{3ab}$

Model (3)

Question 1 : Choose the correct answer :

1

A trapezium with a height of 5.4 cm and the lengths of its parallel bases are 8 cm and 10 cm , has an area of Square centimeters.

- (a) 48.6 (b) 54 (c) 97.2 (d) 432

2

$(x^3 + x^2 + x) \div x = \dots\dots$

- (a) $x^3 + x^2$ (b) $x^2 + x$ (c) $x^2 + x + 1$ (d) 0

3

What is the image of the point (4,-1) by reflection in the y-axis ?

- (a) (-1,4) (b) (4,1) (c) (-4,-1) (d) (-1,-4)

4

If the dimensions of a rectangle are 3y and 5y units, then what is its area ?

- (a) 16y (b) $15y^2$ (c) $8y^2$ (d) 8y

5

What is the image of the point (2,-3) by translation 3 units upwards ?

- (a) (5,-3) (b) (5,-6) (c) (2,0) (d) (5,0)

6

If the area of a square is 50 square meters, then the length of its diagonals is meters.

- (a) 100 (b) 10 (c) 25 (d) 5

7

$\dots\dots \div (9x^2y) = 3xy^2$

- (a) $3xy^2$ (b) 3xy (c) $27x^3y^3$ (d) 27xy

8

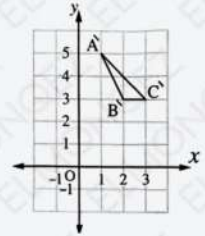
What is the image of the point (a , b) by translation (x , y) \rightarrow (x+2 , y-3) ? The fraction of the colored part of the shape is

- (a) (a-3 , b+2) (b) (a+2 , b-3) (c) (2,-3) (d) (a+2 , b+3)

- 9 A trapezium with a middle base length of X cm and a height is equal to half the length of its middle base. What is its area in square centimeters ?
- (a) x^2 (b) $\frac{x^2}{2}$ (c) $\frac{x^2}{4}$ (d) $\frac{x^2}{8}$

Question 2 : Answer the following :

- 1 Draw the triangle ABC in which $AB = 6$ cm , $BC = 8$ cm and $AC = 10$ cm , then by using a ruler and compass bisect \overline{AC} at M. Is $AC = 2 BM$?
- 2 The square ABCD has all its vertices located in the quadrant. If $A(-1,1)$, $B(-1,4)$, draw the square ABCD in the coordinate plane and then find its image under each of the following :
- 1) $R(O, -180^\circ)$
2) $R(O, 270^\circ)$
- 3 A rhombus has diagonals of lengths $(3x+6)$ meters and $(x+1)$ meters. Find its area in terms of x and then find the numerical value of the area when $x = 1$
- 4 In the opposite figure :
If $\Delta \hat{A}\hat{B}\hat{C}$ is the image of ΔABC
by translation $(x, y) \rightarrow (x + 3, y + 4)$, draw ΔABC ?



- 5 A trapezium has an area of 105 square centimeters and a height of 7 centimeters. If the ratio between the lengths of its two bases is 2 : 3. What is the length of each base ?
- 6 Draw an angle of measure 45° and then bisect it using a ruler and compass.
- 7 Draw \overline{AB} on a grid where $A(2,1)$, $B(3,5)$ and then draw its image under reflection in the X-axis followed by reflection in the y-axis.

Model (4)

Question 1 : Choose the correct answer :

- 1 $4a^2 \times \dots = 12a^3$
- (a) $48a^5$ (b) $6a^5$ (c) $3a^2$ (d) $3a$

2. $\frac{2x^2-8x}{2x} = \dots$
- (a) $-x$ (b) $-x^2$ (c) $x^2 - y^2$ (d) $x - 4$
3. If $x = \sqrt{\frac{1}{9}}$, then $x^3 = \dots$
- (a) $\frac{1}{81}$ (b) $\frac{1}{27}$ (c) $\frac{1}{9}$ (d) $\frac{1}{3}$
4. If $(x-7)(x+7) = x^2 + bx - 49$, then $b = \dots$
- (a) 0 (b) 14 (c) -14 (d) 7
5. The image of the point $(-4, 4)$ by translation $(x, y) \rightarrow (x-1, y+2)$ is
- (a) $(-5, 2)$ (b) $(-5, 6)$ (c) $(-3, 6)$ (d) $(3, 2)$
6. Which of the following equals 0.0421?
- (a) 4.21×10^{-2} (b) 4.21×10^2 (c) 42.1×10^{-3} (d) 42.1×10^3
7. The image of the point $(2, 4)$ by reflection in the y-axis followed by reflection in the x-axis is
- (a) $(2, -4)$ (b) $(-2, -4)$ (c) $(-2, 4)$ (d) $(2, 4)$
8. A trapezium the length of its two parallel bases are 8 cm and 12 cm what is the length of its middle base?
- (a) 10 (b) 20 (c) 40 (d) 4
9. $\sqrt{3 + \dots} = 3$
- (a) 0 (b) 3 (c) 6 (d) 9

Question 2 : Answer the following :

1. Find the solution set for each of the following in z :
- 1) $2(3x+1) > 20$ 2) $5x-1 \geq 7x+3$
2. Simplify the expression to the simplest form: $3x(2x - y) + 2x(x + 2y)$, then find the numerical value of the resulting expression when $x=1$, $y=2$
3. Draw \overline{AB} length 8cm and bisect it using a ruler and compass. Verify by measuring that the bisection is accurate.
4. Find the length of the diagonal of the square whose area is equal to the area of a rhombus with diagonal lengths of 12 meters and 3 meters.

- 5 Find the value of d that makes the expression $(2x^2 - 7x + d)$ divisible by $(2x+1)$
- 6 Simplify to its simplest form
 a) $(a - 3b)(2a - 5b)$ b) $(5 - 2x)^2$
- 7 Draw the triangle which its vertices are A (1,1) B(3,4) C (4,1), then draw its image by reflection in the y-axis.

Model (5)

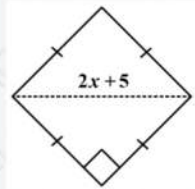
Question 1 : Choose the correct answer :

- 1 If the word's population is approximately 6 milliards , what is the scientific notation for the word population?
 (a) 6×10^{10} (b) 6×10^9 (c) 60×10^8 (d) 6×10^8
- 2 If $x^3 + 7 = 15$, then $x = \dots$
 (a) 8 (b) -2 (c) 2 (d) -8
- 3 If $3^3 + 3^3 + 3^3 = 3^n$, then $n = \dots$
 (a) 3 (b) 4 (c) 9 (d) 27
- 4 What is the image of the point $(-3,4)$ by translation $(x, y) \rightarrow (x-1, y-3)$ followed by the translation $(-1, 3)$?
 (a) $(-4,1)$ (b) $(-2,7)$ (c) $(-4, -1)$ (d) $(4,1)$
- 5 If $-3x^3 \times x = ax^n$, what is the value of $a+n$?
 (a) 1 (b) 0 (c) 7 (d) -3
- 6 Which of the following points remains the same when reflected in the y-axis?
 (a) $(3, -4)$ (b) $(2,1)$ (c) $(0,5)$ (d) $(-6,0)$
- 7 If the area of rhombus is 50 square units, then What is the product of the length of its diagonals?
 (a) 100 (b) 25 (c) 50 (d) 150
- 8 $\div (8x^2y) = 3xy^2$
 (a) $3xy^2$ (b) $24xy^2$ (c) $24x^3y^3$ (d) $3xy$

- 9 If the dimensions of a rectangle $4a$ and $7a$ units , then what is its area?
- (a) $28a$ (b) $22a$ (c) $28a^2$ (d) $11a^2$

Question 2 : Answer the following :

- 1 The area of a square equal the area of a triangle with a base Length of 12 cm and a height corresponding to this base of 6 cm. Find the length of the square's side.
- 2 A cuboid has a volume of $(15x^2y + 20xy)$ cubic units and a base area of $(5xy)$ square units. Find its height in terms of x and y
- 3 Draw $\angle ABC$ of measure 140° and then bisect it using a ruler and compass with the bisector, illustrating the steps of the solution.
- 4 Draw the image of $\triangle ABC$ where $A(-3,1)$, $B(-1,3)$, $C(-4,6)$ by reflection in the x -axis following by reflection in the y -axis.
- 5 Find the area of the opposite square in terms of x Then find the numerical value of the area when $x=5$
- 6 Find the area of the trapezium whose lengths of the two parallel are 6cm and 10 cm and its height 7cm
- 7 If $(x+3)$ is one factor of the expression $(x^2 - 15 - 2x)$, find the other factor



Question 1 : Choose the correct answer :

- 1 $-24x^2y^3 \div (-6x^2) = \dots\dots$
 - a $4x^2$
 - b $4y^2$
 - c $4x^4y^3$
 - d $4y^3$
- 2 A square with a diagonal length of 12 feet has an area of $\dots\dots$ square feet.
 - a 36
 - b 72
 - c 144
 - d 180
- 3 Which of the following points remains the same when reflected in the y-axis ?
 - a $(-7,0)$
 - b $(0,3)$
 - c $(-2,5)$
 - d $(4,-10)$
- 4 What is the image of the point $(-4,0)$ by rotation $R(0,90^\circ)$ followed by rotation $R(0,-90^\circ)$?
 - a $(-4,0)$
 - b $(4,0)$
 - c $(0,4)$
 - d $(0,-4)$
- 5 If a rhombus with diagonal lengths of 6 inches and 10 inches, then what is its area ?
 - a 30 square inches
 - b 60 square inches
 - c 16 square inches
 - d 120 square inches
- 6 $\frac{24x^2y^3z}{\dots\dots\dots} = -2xyz$
 - a $-48x^3y^4z^2$
 - b $-12xy^2z$
 - c $-12xy^2$
 - d $12xyz$
- 7 If the $A(3,5)$ is the image of the point A by translation $(x,y) \rightarrow (x-1,y+2)$, then the point A is $\dots\dots$
 - a $(2,7)$
 - b $(4,3)$
 - c $(5,3)$
 - d $(4,-3)$
- 8 The image of the point $\dots\dots\dots$ is the same point by reflection in the X-axis.
 - a $(-3,0)$
 - b $(0,2)$
 - c $(-4,10)$
 - d $(-2,-5)$
- 9 When bisecting the line segment \overline{AB} by a compass, you must have $\dots\dots$
 - a $AC < \frac{1}{2} AB$
 - b $AC < AD$
 - c $AC > \frac{1}{2} AB$
 - d $AC < AE$



Question 2 : Answer the following :

- ① Find the length of the diagonal of the square whose area equal to the area of a rhombus with diagonal lengths of 4 meters and 16 meters.

$$A1 = \frac{1}{2} \times d_1 \times d_2 = \frac{1}{2} \times 4 \times 16 = 32m^2$$

$$\therefore \text{The area of the square} = 32 m^2$$

$$A2 = \frac{1}{2} \times d^2$$

$$\therefore 32 = \frac{1}{2} \times d^2 \therefore d^2 = 64 \therefore d = \sqrt{64} = 8 m$$

- ② Draw the rectangle ABCD where A (2 , 1) , B (2 , 3) , C (-3, 3) , and D (- 3, 1) , then draw its image by reflection in the X-axis.

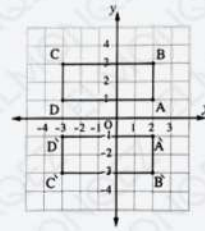
By reflection in the X-axis

$$A (2,1) \rightarrow \hat{A} (2,-1)$$

$$B (2,3) \rightarrow \hat{B} (2,-3)$$

$$C (-3,3) \rightarrow \hat{C} (-3,-3)$$

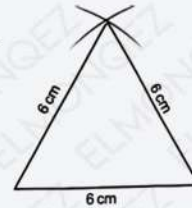
$$D (-3,1) \rightarrow \hat{D} (-3,-1)$$



- ③ Find the quotient of : $(x^2 - 20 - x)$ divided by $(x - 5)$

$$\begin{array}{r} x+4 \\ x-5 \overline{) x^2 - x - 20} \\ \underline{-(x^2 - 5x)} \\ 4x - 20 \\ \underline{-(4x - 20)} \\ 0 \end{array}$$

- ④ Draw an equilateral triangle with a perimeter of 18 cm.
The side length of the triangle = $18 \div 3 = 6 \text{ cm}$



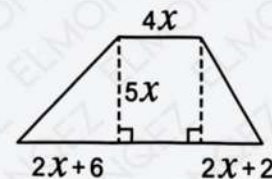
- ⑤ Find in terms of x the area of the opposite trapezium.

$$A = \frac{1}{2} (b_1 + b_2) \times h$$

$$A = \frac{1}{2} (2x + 6 + 4x + 2 + 4x) \times 5x$$

$$A = \frac{1}{2} (12x + 8) \times 5x$$

$$A = (6x + 4) \times 5x = 30x^2 + 20x$$



- 6 Find the image of the polygon ABCD by rotation $R(O, -270^\circ)$ where $A(2,0)$, $B(2,4)$, $C(0,4)$, $D(0,2)$

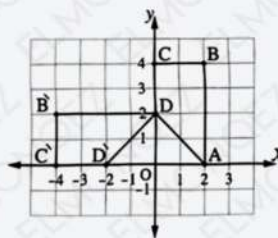
by rotation $R(O, -270^\circ)$:

$A(2,0) \rightarrow \hat{A}(0,2)$

$B(2,4) \rightarrow \hat{B}(-4,2)$

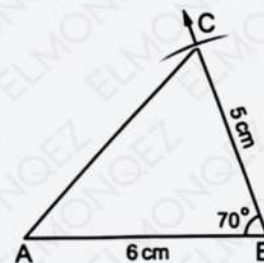
$C(0,4) \rightarrow \hat{C}(-4,0)$

$D(0,2) \rightarrow \hat{D}(-2,0)$



- 7 Draw $\triangle ABC$ where $AB = 6$ cm, $BC = 5$ cm and $m(\angle B) = 70^\circ$, then determine the type of triangle according to the measures of its angles.

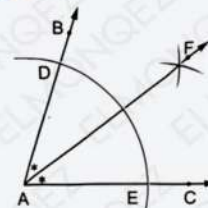
From the figure the triangle is an acute – angled triangle



Model (2)

Question 1 : Choose the correct answer :

- 1 Which of the following is the image of the point $(5,0)$ by rotation $R(O, 90^\circ)$?
 (a) $(5,0)$ (b) $(-5,0)$ (c) **$(0,5)$** (d) $(0,-5)$
- 2 The length of the middle base in a trapezium is equal to 15 feet and its height is 8 feet. What is its area?
 (a) 60 square feet (b) **120 square feet**
 (c) 240 square feet (d) 23 square feet
- 3 If $\frac{4x^3}{a} = 1$, then what is the value of a ?
 (a) 1 (b) 4 (c) **$4x^3$** (d) $4x^2$
- 4 What is the image of the point (a,b) by reflection in the y-axis ?
 (a) $(a,-b)$ (b) **$(-a,b)$** (c) $(b,-a)$ (d) $(-b,a)$
- 5 In the opposite figure : When bisecting $\angle BAC$ with a compass makes you find that: $m(\angle BAF) = \dots\dots$
 (a) $m(\angle BFA)$ (b) **$m(\angle EAF)$**
 (c) $m(\angle EFA)$ (d) $m(\angle BAC)$



- 6 $\div 8ab = 4ab$
- (a) 2 (b) $12ab$ (c) $2a^2b^2$ (d) $32a^2b^2$
- 7 What is the point whose image by rotation $R(0, 180^\circ)$ is $(-3, 1)$?
- (a) $(3, 1)$ (b) $(1, 3)$ (c) $(-1, 3)$ (d) $(3, -1)$
- 8 The product of the length of two diagonals of a square is 16 square meter. What is its area in square meters?
- (a) 4 (b) 8 (c) 32 (d) 128
- 9 If $\frac{2x-6}{6-2x} = a$, then what is the value of a ?
- (a) 3 (b) -3 (c) -2 (d) -1

Question 2 : Answer the following :

- 1 Find the area of the trapezium whose lengths of the two parallel bases are 7 cm and 15 cm and its height is 8 cm.
- The area of the trapezium $= \frac{1}{2}(b_1 + b_2) \times h = \frac{1}{2}(7 + 15) \times 8 = 88 \text{ cm}^2$
- 2 If the expression $(x^3 - x^2 - 4x + m)$ is divisible by $(x - 3)$, find the value of m .

$$\begin{array}{r}
 \textcircled{2} \quad \begin{array}{r}
 x^2 + 2x + 2 \\
 x-3 \overline{) x^3 - x^2 - 4x + m} \\
 \underline{-(x^3 - 3x^2)} \\
 2x^2 - 4x + m \\
 \underline{-(2x^2 - 6x)} \\
 2x + m \\
 \underline{-(2x - 6)} \\
 m + 6
 \end{array} \\
 \therefore m + 6 = 0 \quad \therefore m = -6
 \end{array}$$

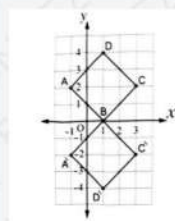
- 3 Draw the square ABCD with vertices $A(-1, 2)$, $B(1, 0)$, $C(3, 2)$ and $D(1, 4)$, then draw its image by reflection in the X-axis.

$$A(-1, 2) \rightarrow \hat{A}(-1, -2)$$

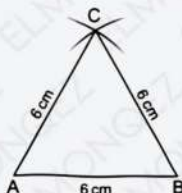
$$B(1, 0) \rightarrow \hat{B}(1, 0)$$

$$C(3, 2) \rightarrow \hat{C}(3, -2)$$

$$D(1, 4) \rightarrow \hat{D}(1, -4)$$



- 4 Draw the equilateral triangle ABC with each side of length 6 cm.

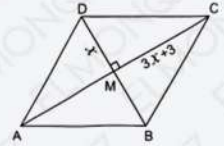


5

In the opposite figure :

ABCD is a rhombus its diagonals intersecting at M.

MD = X , MC = 3X + 3 find the area of the rhombus in terms of X , then calculate the numerical value of the area when X = 7



ABCD is a rhombus

$$\therefore DM = BM, AM = CM$$

$$\therefore BD = x + x = 2x$$

$$AC = 3x + 3 + 3x + 3 = 6x + 6$$

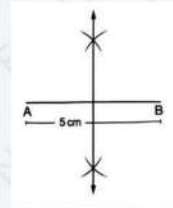
$$A = \frac{1}{2} \times d_1 \times d_2 = \frac{1}{2} \times 2x \times (6x + 6) = 6x^2 + 6x$$

The numerical value of the area at x = 7

$$6(7)^2 + 6 \times 7 = 294 + 42 = 336$$

6

Draw a line segment \overline{AB} of length 5 cm , then bisect it using a ruler and compass.



7

Find the quotient of : $\frac{3ab^2 + 9a^2b - 6a^2b^2}{3ab}$

$$= b + 3a - 2ab$$

Model (3)

Question 1 : Choose the correct answer :

1

A trapezium with a height of 5.4 cm and the lengths of its parallel bases are 8 cm and 10 cm , has an area of Square centimeters.

(a) **48.6**

(b) 54

(c) 97.2

(d) 432

2

$(x^3 + x^2 + x) \div x = \dots\dots$

(a) $x^3 + x^2$

(b) $x^2 + x$

(c) **$x^2 + x + 1$**

(d) 0

3

What is the image of the point (4,-1) by reflection in the y-axis ?

(a) (-1,4)

(b) (4,1)

(c) **$(-4, -1)$**

(d) (-1, -4)

4

If the dimensions of a rectangle are 3y and 5y units, then what is its area ?

(a) 16y

(b) **$15y^2$**

(c) $8y^2$

(d) 8y

5

What is the image of the point (2,-3) by translation 3 units upwards ?

(a) **$(5, -3)$**

(b) (5, -6)

(c) **$(2,0)$**

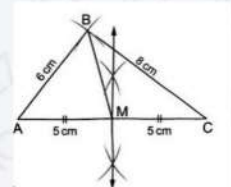
(d) (5,0)

- 6 If the area of a square is 50 square meters, then the length of its diagonals is meters.
- (a) 100 (b) **10** (c) 25 (d) 5
- 7 $\div (9x^2y) = 3xy^2$
- (a) $3xy^2$ (b) $3xy$ (c) **$27x^3y^3$** (d) $27xy$
- 8 What is the image of the point (a , b) by translation (x , y) \rightarrow (x+2 , y-3) ? The fraction of the colored part of the shape is
- (a) (a-3 , b+2) (b) **(a+2 , b-3)** (c) (2,-3) (d) (a+2 , b+3)
- 9 A trapezium with a middle base length of X cm and a height is equal to half the length of its middle base. What is its area in square centimeters ?
- (a) x^2 (b) **$\frac{x^2}{2}$** (c) $\frac{x^2}{4}$ (d) $\frac{x^2}{8}$

Question 2 : Answer the following :

- 1 Draw the triangle ABC in which $AB = 6$ cm , $BC = 8$ cm and $AC = 10$ cm , then by using a ruler and compass bisect \overline{AC} at M. Is $AC = 2 BM$?

Yes, $AC = 2BM$



- 2 The square ABCD has all its vertices located in the quadrant. If $A(-1,1)$, $B(-1,4)$, draw the square ABCD in the coordinate plane and then find its image under each of the following :

1) $R(O, -180^\circ)$

2) $R(O, 270^\circ)$

1) By rotation $R(O, -180^\circ)$

$A(-1,1) \rightarrow A'(1,-1)$

$B(-1,4) \rightarrow B'(1,-4)$

$C(-4,4) \rightarrow C'(4,-4)$

$D(-4,1) \rightarrow D'(4,-1)$

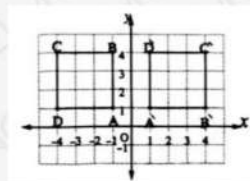
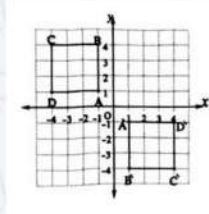
2) By rotation $R(O, 270^\circ)$

$A(-1,1) \rightarrow A'(1,1)$

$B(-1,4) \rightarrow B'(4,1)$

$C(-4,4) \rightarrow C'(4,4)$

$D(-4,1) \rightarrow D'(1,4)$



3

A rhombus has diagonals of lengths $(3x+6)$ meters and $(x+1)$ meters. Find its area in terms of x and then find the numerical value of the area when $x = 1$

$$A = \frac{1}{2} (x + 1)(3x + 6) = \frac{1}{2} (3x^2 + 9x + 6) = \frac{3}{2}x^2 + \frac{9}{2}x + 3 \text{ square meter}$$

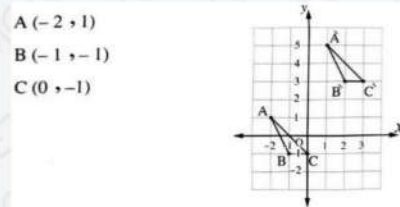
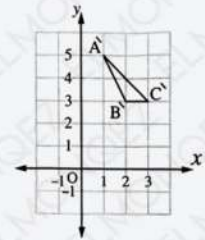
$$\text{The numerical value of the area} = \frac{3}{2} \times (1)^2 + \frac{9}{2} \times 1 + 3 = 9 \text{ m}^2$$

4

In the opposite figure :

If $\Delta \hat{A}\hat{B}\hat{C}$ is the image of ΔABC

by translation $(x, y) \rightarrow (x + 3, y + 4)$, draw ΔABC ?



5

A trapezium has an area of 105 square centimeters and a height of 7 centimeters. If the ratio between the lengths of its two bases is 2 : 3. What is the length of each base ?

$$A = \frac{1}{2} (b_1 + b_2) \times h$$

$$105 = \frac{1}{2} (b_1 + b_2) \times 7$$

$$\therefore b_1 + b_2 = \frac{105}{3.5} = 30$$

$$\therefore b_1 : b_2 : \text{The sum}$$

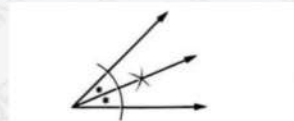
$$2 : 3 : 5$$

$$? : ? : 30$$

$$\therefore b_1 = \frac{2 \times 30}{5} = 12, b_2 = \frac{3 \times 30}{5} = 18$$

6

Draw an angle of measure 45° and then bisect it using a ruler and compass.

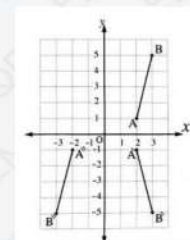


7

Draw \overline{AB} on a grid where $A(2,1)$, $B(3,5)$ and then draw its image under reflection in the X-axis followed by reflection in the y-axis.

$$A(2,1) \rightarrow \hat{A}(2,-1) \rightarrow A''(-2,-1)$$

$$B(3,5) \rightarrow B'(3,-5) \rightarrow B''(-3,-5)$$



Model (4)

Question 1 : Choose the correct answer :

- 1 $4a^2 \times \dots = 12a^3$
 - a $48a^5$
 - b $6a^5$
 - c $3a^2$
 - d $3a$
- 2 $\frac{2x^2-8x}{2x} = \dots$
 - a $-x$
 - b $-x^2$
 - c $x^2 - y^2$
 - d $x - 4$
- 3 If $x = \sqrt{\frac{1}{9}}$, then $x^3 = \dots$
 - a $\frac{1}{81}$
 - b $\frac{1}{27}$
 - c $\frac{1}{9}$
 - d $\frac{1}{3}$
- 4 If $(x-7)(x+7) = x^2 + bx - 49$, then $b = \dots$
 - a 0
 - b 14
 - c -14
 - d 7
- 5 The image of the point $(-4, 4)$ by translation $(x, y) \rightarrow (x-1, y+2)$ is
 - a $(-5, 2)$
 - b $(-5, 6)$
 - c $(-3, 6)$
 - d $(3, 2)$
- 6 Which of the following equals 0.0421 ?
 - a 4.21×10^{-2}
 - b 4.21×10^2
 - c 42.1×10^{-3}
 - d 42.1×10^3
- 7 The image of the point $(2, 4)$ by reflection in the y-axis followed by reflection in the x-axis is
 - a $(2, -4)$
 - b $(-2, -4)$
 - c $(-2, 4)$
 - d $(2, 4)$
- 8 A trapezium the length of its two parallel bases are 8 cm and 12 cm what is the length of its middle base?
 - a 10
 - b 20
 - c 40
 - d 4
- 9 $\sqrt{3 + \dots} = 3$
 - a 0
 - b 3
 - c 6
 - d 9

Question 2 : Answer the following :

- 1 Find the solution set for each of the following in z :

1) $2(3x+1) > 20$

$6x+2 > 20$

$6x > 20-2$

$6x > 18$

$x > 3$

2) $5x-1 \geq 7x+3$

$5x-7x \geq 4$

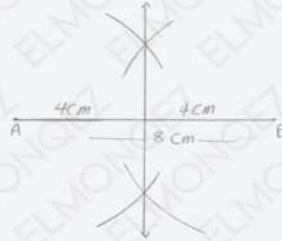
$-2x \geq 4$

$x \leq -2$

- 2 Simplify the expression to the simplest form: $3x(2x - y) + 2x(x + 2y)$, then find the numerical value of the resulting expression when $x=1$, $y=2$

$$6x^2 - 3xy + 2x^2 + 4xy = 8x^2 - xy = 8 - 2 = 6$$

- 3 Draw \overline{AB} length 8cm and bisect it using a ruler and compass. Verify by measuring that the bisection is accurate.



- 4 Find the length of the diagonal of the square whose area is equal to the area of a rhombus with diagonal lengths of 12 meters and 3 meters.

$$\text{Area of a rhombus} = \frac{1}{2} d_1 \times d_2 = \frac{1}{2} \times 12 \times 3 = 18\text{m}^2$$

$$\text{The area of square} = \frac{1}{2} \times d^2$$

$$18 = \frac{1}{2} \times d^2, d=6\text{m}$$

- 5 Find the value of d that makes the expression $(2x^2 - 7x + d)$ divisible by $(2x+1)$

$$\begin{array}{r} \text{X-4} \\ 2x+1 \overline{) 2x^2 - 7x + d} \\ \underline{2x^2 + x} \\ -8x + d \\ \underline{-8x - 4} \\ d + 4 \end{array} \quad , d = -4$$

- 6 Simplify to its simplest form

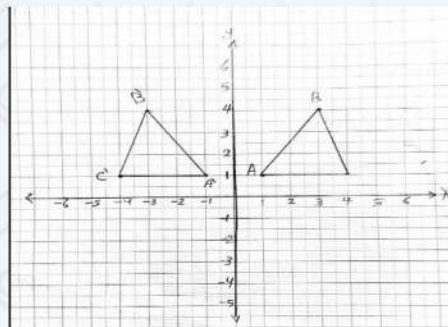
a) $(a - 3b)(2a - 5b)$

$$2a^2 - 11ab + 15b^2$$

b) $(5 - 2x)^2$

$$25 - 20x + 4x^2$$

- 7 Draw the triangle which its vertices are A (1,1) B(3,4) C (4,1), then draw its image by reflection in the y -axis.



Question 1 : Choose the correct answer :

- 1 If the world's population is approximately 6 milliards , what is the scientific notation for the world population?
 (a) 6×10^{10} (b) 6×10^9 (c) 60×10^8 (d) 6×10^8
- 2 If $x^3 + 7 = 15$, then $x = \dots$
 (a) 8 (b) -2 (c) 2 (d) -8
- 3 If $3^3 + 3^3 + 3^3 = 3^n$, then $n = \dots$
 (a) 3 (b) 4 (c) 9 (d) 27
- 4 What is the image of the point $(-3, 4)$ by translation $(x, y) \rightarrow (x-1, y-3)$ followed by the translation $(-1, 3)$?
 (a) $(-4, 1)$ (b) $(-2, 7)$ (c) $(-4, -1)$ (d) $(4, 1)$
- 5 If $-3x^3 \times x = ax^n$, what is the value of $a+n$?
 (a) 1 (b) 0 (c) 7 (d) -3
- 6 Which of the following points remains the same when reflected in the y-axis?
 (a) $(3, -4)$ (b) $(2, 1)$ (c) $(0, 5)$ (d) $(-6, 0)$
- 7 If the area of rhombus is 50 square units, then What is the product of the length of its diagonals?
 (a) 100 (b) 25 (c) 50 (d) 150
- 8 $\dots \div (8x^2y) = 3xy^2$
 (a) $3xy^2$ (b) $24xy^2$ (c) $24x^3y^3$ (d) $3xy$
- 9 If the dimensions of a rectangle $4a$ and $7a$ units , then what is its area?
 (a) $28a$ (b) $22a$ (c) $28a^2$ (d) $11a^2$

Question 2 : Answer the following :

- 1 The area of a square equal the area of a triangle with a base Length of 12 cm and a height corresponding to this base of 6 cm. Find the length of the square's side.

$$\text{The area of a triangle} = \frac{1}{2} \times b \times h = \frac{1}{2} \times 12 \times 6 = 36\text{cm}^2$$

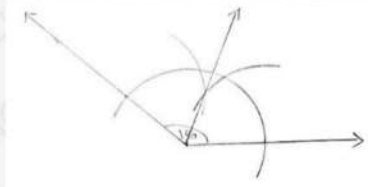
$$\text{The area of a square} = s^2$$

$$36 = s^2, s = \sqrt{36} = 6 \text{ cm}$$

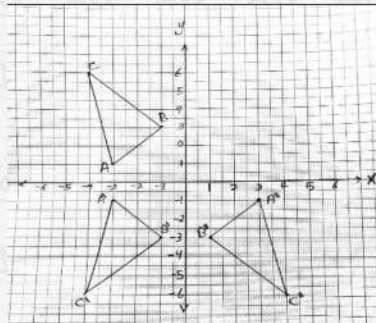
- 2 A cuboid has a volume of $(15x^2y + 20xy)$ cubic units and a base area of $(5xy)$ square units. Find its height in terms of x and y

The height = $\frac{15x^2y + 20xy}{5xy} = 3x + 4$

- 3 Draw $\angle ABC$ of measure 140° and then bisect it using a ruler and compass with the bisector, illustrating the steps of the solution.



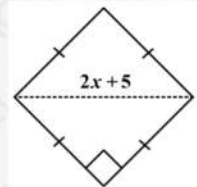
- 4 Draw the image of $\triangle ABC$ where $A(-3,1)$, $B(-1,3)$, $C(-4,6)$ by reflection in the x -axis following by reflection in the y -axis.



- 5 Find the area of the opposite square in terms of x . Then find the numerical value of the area when $x=5$

The area of square = $\frac{1}{2} \times d^2 = \frac{1}{2} \times (2x + 6)^2$
 $= \frac{1}{2} \times (4x^2 + 24x + 36) = 2x^2 + 12x + 18$

when $x=5$, the area of square = 128



- 6 Find the area of the trapezium whose lengths of the two parallel are 6cm and 10 cm and its height 7cm

The area of the trapezium = $\frac{1}{2} (b_1 + b_2) \times h$
 $= \frac{1}{2} (6 + 10) \times 7 = 56 \text{ cm}^2$

- 7 If $(x+3)$ is one factor of the expression $(x^2 - 15 - 2x)$, find the other factor

$$\begin{array}{r} \text{X-5} \\ x+3 \overline{) x^2 - 2x - 15} \\ \underline{x^2 + 3x} \\ -5x - 15 \\ \underline{-5x - 15} \\ 0 \end{array}$$

كيفية طباعة صفحات معينة من ملف معين مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9

